# Social & Cultural Life in Ancient India

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**K. Krishna Murthy**

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# PREFACE

The recent trend of the historical research has been the study of the material culture of the ancient past. The true history of any country cannot merely be the chronological narration of political events. It must deal with its physiognomy and their inner-most character of its past and present generations. Consequently, the historian is required to inquire into the various aspects of contemporary life such as the way of life, past-time, private and public occupations, customs and manners—in fact regarding all social aspects which compose a particular culture.

The present book "Studies in Ancient India" endeavours to highlight the various aspects of the social life of the ancient Indians. The intent of this study is to give deep insight into the kaleidoscopic variety of social life led by the ancient Indians reflecting intensely on aspects of their customs and rituals such as sati and Asvamedha, the methods followed by ancients in the construction of their forts and towns, their adeptness in sciences like Surgery, horticulture etc., their past times like dice-play, festivals etc. The commendable efforts that the ancient Indians took in disposing of the dead and the manufacturing techniques of the ancient pottery (with its literary citations) they adopted have all been brought within the compass of the subject matter. An interesting topic dealing with ancient flora also finds place in this volume. For the compact summation of this indological study, I have pieced together some of my selective research papers appeared in different journals, periodicals from time to time and a reference to this has been made under the title "References to papers chapter-wise".

In the preparation of this book, I have received help from many of my colleagues in various ways. To them I am beholden. I specially thank Shri G. Kameswara Rao, Stenographer, Archaeological Survey of India, Chemistry Branch, Hyderabad, who has typed the manuscript neatly and excellently. Shri R.Y. Krishna Rao, Stenographer, and Kumari Devaki Rani of Archaeological Survey of India, South Eastern Circle, Hyderabad, have typed introduction and Bibliography of this book respectively. To them I am greatly thankful. The figures incorporated in this book are drawn by my friends Sarvasri M. Rami Reddy, T. chenchuratnam Nambiraju, U. Sreeramulu and C. Rangappa all of the Archaeological Survey of India to whom I owe my grateful thanks. These figures are photographed by Shri Sudhir Kumar, Photographer, to whom I wish to express my thanks. The plates published in this book are by the courtesy of the Archaeological Survey of India. My thanks are also due to Sundeep Prakashan, Delhi, for readily undertaking to publish the "Studies in Ancient India," a collection of my research papers.

Dr. K. Krishna Murthy.

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# ABBREVIATIONS

| | |
|---|---|
| Ācā | Ācārāṇga |
| AI | Ancient India |
| An Cū | Anuyogadāra cūrni |
| Āp SS | Āpastaṁba Śrauta Sūtra |
| ASIAR | Archaeological Survey of India |
| | Annual Reports |
| Āsv SS | Asvalāyana Śrauta Sūtra |
| AV | Atharva Veda |
| BDCRI | Bulletin of the Deccan College |
| | Post Graduate Research Institute |
| Bṛh. Bhā | Bṛhatakalpa Bhāsya |
| Digh. Ni | Dīgha Nikāya |
| EI | Epigraphia Indica |
| IHQ | Indian Historical Quarterly |
| Ind. Cul | Indian Culture |
| J | Jātaka |
| JAHRS | Journal of the Andhra Historical |
| | Research Society |
| JBORS | Journal of the Bhandarkar Oriental |
| | Research Society |
| JOHRS | Journal of the Orissa Historical |
| | Research Society |
| KA | Kauṭilya's Arthaśāstra |
| Kāt. SS | Kātyāyana Śrauta Sūtra |
| Kh. | Khadira Gṛihya Sūtra |
| KS | Kāma Sūtra |
| Kum | Kumārasaṁbhava |
| Lat | Lātyāyana śrauta sutrā |
| Māl | Mālavikāgnimitra |

| | |
|---|---|
| Miln | : Milindapañha |
| Mu | : Meghadūta |
| Ragh | : Raghuvaṁśaṁ |
| Rtu | : Rtu saṁhāra |
| RV | : Rig Veda |
| Śāk | : Śākuntala |
| Sam | : Samavāyānga |
| Sānkh SS | : Sānkhāyana Śrauta Sūtra |
| Śat Br | : Śatapatha Brahmaṇa |
| S B E | : Sacred Books of the East |
| Taitt. Br. | : Taittirīya Brāhmaṇa |
| Uvā | : Uvāsagadasāo |
| Vāj Saṁ | : Vajasaneya Saṁhita |
| Vik | : Vikramorvasīyaṁ |
| Vin | : Vinaya |
| Viva | : Vivāgasūya |
| Vya Bhā | : Vavāhara Bhāsya |

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## 1

# INTRODUCTION

This volume comprises fourteen selective research papers devoted to the study of Indian History contributed by me to different journals, periodicals and leading dailies during the past two decades. These papers represent various aspects of hillarious activities interspersed with social life of ancient Indians commencing from the Vedic times to the medieval period. The kaleidoscopic variety of life constituting festivals, horticulture, dice-play, surgery and the like have all been brought within the compass of the subject matter. The interesting topics like the forts, town-planning, forestry are candidly exemplified. The ancient customs of Aśvamedha and Satī sacrifice also form the subject of study in this volume. The chapter on the manufacture of ancient pottery with its literary corroboration is brilliantly highlighted. Schematically presented, these chapters build up a picturesque panorama of the social life of the ancients in historical retrospect.

The chapter on Forts (2) is the outcome of the study of the antiquity of forts in India. The early Sanskrit literature abounds with the descriptions of forts through the ages. The Vedic literature, the epics *Rāmāyaṇa* and *Mahābhārata*, the Buddhist *Jātakas*, the *kāvyas* of Kālidāsa, and the *Mānasāra* speak of the forts at several places. In fact, in Kauṭilya's *Arthaśāstra*, a chapter on "*Durga Vidhānaṁ*" is set aside for delineating graphically the construction of the forts. The Archaeological Excavations at Mohenjodaro and Harappa, Rajgir, Pataliputra, Ujjain, Besnagar, Sisupalgarh, Ahichchhatra, Nāgārjunakoṇḍa disclosed vestiges of fortifications of the ancient period. The forts of Daulatabad, Mudgal, Bidar, Golkonda, etc., stand testimony for the master builders of the forts in medieval period.

Town Planning (3) deals with the different types of town-planning which prevailed in ancient India. The ancient India offers eight types of town-planning. They have been divided into different categories according to their forms and dimensions. They include *Daṇḍaka*, *Sarvatobhadra*, *Nandyāvarta*, *Padmaka*, *Svastika*, *Prastara*, *Karmukha*, *Chaturmukha*. The *Mānasāra* classified the ancient towns on the basis of their shapes and methods of their street-planning and temple planning and folk planning Mayamunt however based his classification mainly on planning of streets.

Trees, Herbs and Forests (4) is an alluring topic wherein an attempt has been made to enumerate the variety of flora known to the ancient Indians through the ages. The ancient Indian literature gives ample information as regards this. The Vedic literature, the epics *Rāmāyaṇa* and *Mahābhārata*, Kauṭilya's *Arthaśāstra*, Jaina and Buddhist texts, the *Śukranītisāra* and the *kāvyas* of Kālidāsa give graphic account of trees, herbs, and forests known to the ancient Indians through the ages. It can be seen that during the days of Kauṭilya the importance of forest was appreciated and the materials obtained therefrom were highly valued and a fairly good attempt was made to control the exploitation of the Sylvan produce. This chapter provides at the end an useful list of trees with their botanical nomenclature.

The chapter on Horticulture (5) for the first time visualises the keen care bestowed by the ancients in the matter of horticulture. The science of horticulture in India is very old and finds its incipience in the Vedic period. The *Rāmāyaṇa* speaks of several groves known to its period. The groves like *Veṇuvana*, *Ambavana*, *Mahāvana*, *Jetavana*, etc., are enumerated in Buddhist texts. Vatsyāyana in his *Kāmasūtra*, gives graphic account of the pleasure gardens attached to the residential houses and the palaces of the kings. Similarly, much can be known about the horticulture from the *kāvyas* of the poet Kālidāsa. The *Upavana Vinoda*, a chapter in *Sārangadhara Paddati* of Sārangadhara, a 13th-century A.D. Sanskrit work, completely deals with the horticulture of the times. The importance attached to horticulture in ancient period was so much that the science of horticulture became exemplary to the gardens of the later period to emulate it.

The chapter on Festivals (6) is the outcome of the study of different types of festivals that the people enjoyed in ancient times. The Indian literature like the *Vedas*, the *Purāṇas*, the *Jātakas* etc., abound with references to the festivals known to ancient India. In fact, Vatsyāyana in his *Kāmasūtra* enlists the festivals like *Yakṣarātri*, *Kaumudi Jāgāra*, *Suvasantaka*, *Sahakara-bhañjika*, *Abhyusa-Khaḍika*, *Bisa Khaḍika*, *Navapatrika*, *Udaka Kṣedika*, *Pañchalanuyana*, *Ekasalamate*, *Yavacaṭurti*, *Alola-Caṭhurthi*, *Madanotsva*, *Damana-bhañjika*, *Holaka*, *Puṣpavacayika*, *Chutalatika*, *Ikṣu-bhañjika*, *Kadamba-yuddha*, known to his period.

The festivals like *Puruhuta*, *Kakabali* and *Ṛtustsva* are mentioned in the *kāvyas* of Kālidāsa. The festivals known to the ancients were thus many and these festivals were enjoyed by the ancient Indians with great mirth and joy.

The chapter on Dice-play (7) is again an interesting topic which traces out the origin of the ancient game with its survivals in the present day games. The Sanskrit literature like the Vedic, *Purāṇic* and the *Jātakas* gives ample information about the dice-play. However, the Vedic literature does not speak of the use of the dice-board. The games like *Aṭṭhapada* and *Daśapada* are mentioned in the Buddhist literature. What is interesting is the prevalence of game boards in the sculptures of Barhut and on the slabs of bathing-ghat and burning-ghat at Nāgārjunakoṇḍa. The modern games like *Zana-bettha*, *Pulijūdaṁ*, *Aṭṭachamma* and *Patchis* reveal their close affinity to many of the ancient games. The games *Aṭṭachamma* and *Patchis* have closer affinity to the ancient Indian games of *Aṭṭhapada* or *Daśapada* dice-play. In all probability, these modern games are only derivatives of those ancient games and have come down to us.

The chapter on Aśvamedha Ritual (8) traces out the origin and development of Aśvamedha sacrifice in ancient times. The Vedic literature refers to Aśvamedha sacrifice and in fact the *Ṛgveda* sets aside one complete canto (162) for describing the Aśvamedha ritual. A deep mystic significance came to be attached to the horse sacrifice in the speculation of the *Brāhmaṇas*. The epics, *Rāmāyaṇa* and

*Mahābhārata*, exemplify the horse sacrifice. However, the horse sacrifice appears to be a rare rite in ancient times. It was very much developed in historical period. Both epigraphical and numismatic evidences throw a flood of light on the Aśvamedha sacrifice. The famous poet Bhavabhūti of the 8th century A.D. and Alberuni of the 11th century A.D. refer to the practice of the Aśvamedha sacrifice. As late as 18th century A.D. there was a reference to the performance of Aśvamedha by the king Jaisingh of Amber.

Satī sacrifice (9) is another alluring topic in which an attempt has been made to trace out its origin. It appears that in the Vedic India the Satī sacrifice was discouraged and no Vedic passage refers to the burning of the widow alive as then current. It is only in the *Vishṇu Dharma Sūtra* that a reference has been made to the ritualistic survival of the custom of the Satī sacrifice. The exemplification of the Satī practice from the *Rāmāyaṇa* and the *Mahābhārata* can be gleaned with epic diffuseness. It is only the *Śuddhi Tatva* that gives vividly the procedure of widow burning.

Satī memorial stones are found in large numbers throughout India. At Nāgārjunakoṇḍa as a result of the excavation, a sculpture disclosing a lady committing satī is recovered. It is significantly discovered from the burning-ghat of the Ikṣvākus. The Satī practice continued through the ages until later in 1829 Lord William Bentinck abolished this Satī practice declaring it as illegal and crime.

Surgery (10) is a topic which visualizes the mode of surgery of the ancients. The ancient literature helps very much in understanding the surgery through the ages. As early as in the Vedic period itself, *Aśvins*, who were adepts in surgical art, mended the leg of Vispala who had lost it in a battle. The lost leg was supplanted with an iron one. The Jain and the Buddhist texts accord several references to the surgery known to the period. The surgery was fairly developed and in a high state of efficiency in Buddhist period. Jīvaka Kamarabhacca was the master surgeon and physician in the court of Bimbisāra.

The *Suśrūta Saṁhitā*, the basic text book of the Indian medicine of the 4th century A.D. deals with surgery in much detail. It explicity recounts the mode of surgery practised in those times. It speaks of oleation (*Snehakarma*), amputation (*Chedyakarma*), incision (*Bhedyakarma*), perforation (*Vedyakarma*), probing (*Eṣyakarma*). extraction (*Āhāryakarma*), draining (*Visrāvyakarma*), stitching or sewing (*Sīvyakarma*), Bandaging (*Bandhanakarma*), plastic surgery of ear (*Karṇasandhi Bandhakarma*), cauterizing (*Agnikṣārakarma*), inserting catheter into the bladder (*Netrapraṇidānavasti karma*) and inserting tube into an ulcerated channel (*Vraṇavasti pīḍana karma*). The *Suśrūta Saṁhitā* speaks of several surgical words and surgical instruments. The medical ethics are vividly explained in the *Suśrūta Saṁhitā*. As is evident from the aforesaid account, surgery in ancient India was very much developed and it became so exemplary that in later period also its principles were followed.

The chapter on Rationing and the Famine Relief Measures (11) deals with the measures taken by the ancient Indians in respect of rationing and famine reliefs. The *Aṅguttara Nikāya* a Pāli text throws some light on this interesting issue. The *Jātakas*, the *Divyāvadāna* give heart-rending stories of famine of the ancient India. The *Arthaśāstra* of Kauṭilya informs that the kings of the Mauryan period took all the care to safeguard their subjects against the ravages of famines. The measures that were taken in ancient India to ward off famine has been graphically described in the chapter.

The chapter on the Disposal of the Dead in early times (12) visualizes interestingly various modes of disposing the dead in ancient period. In Vedic period, two modes of disposal of the dead namely *Agnidagdha* (cremation) and *Anagnidagdha* (burial) were followed. In the *Mahābhārata*, another mode of disposing the dead namely tying the dead body on the top of the tree is indicated. Similarly, the Jain and the Buddhist literatures give different modes of disposing the dead. Yuanchwang who visited India in the 7th century A.D. speaks of the funeral customs like water burial, cremation and interment in the wilds.

In the chapter on Pottery—Its Technical Aspects (13), for the first time an attempt has been made to describe the ancient method of manufacturing pottery. In order to understand the technical aspects of pottery, the knowledge of fabric, surface treatment, firing, decorations and forms of a pot is necessary. Once the technical aspect of pottery is known the historical importance of the pottery can be comprehended easily and fully.

Pottery in Literature (14) is an interesting topic where an attempt has been made to disclose the methods of manufacturing the pottery with literary corroborations. Thus, the Vedic, the Jain and the Buddhist literatures offer several references to the manufacturing of the pottery. In the *Bhoja Prabandha*, there is an indirect reference to the manufacture of the pottery.

The chapter on the Raṭṭa Administration (15) visualizes in details the various measures taken by the Raṭṭas for providing good administration to their subjects. The Raṭṭas of Saundatti and Belgaum, who rose to prominence in the wake of the decline of the Rāṣṭrakūṭas, played a significant role in the politics of the medieval period of the Deccan. They set up sound administration. The empire was divided into innumerable territorial divisions for administrative convenience. The king.was the absolute head of the State in theory. They used to take counsels tendered by their poets in times of need. The capital city of Sugandhavarti was a place of pomp and splendour. The poets like Kamalāditya Karnaparya and Nemichandra lived during Raṭṭa period.

The advice of the *Smṛtis*, that an heir-apparent (*Yuvarāja*) should be selected in the life time of the ruling king appears to have been followed by the Raṭṭa kings. The minister was the most important royal officer in the Raṭṭa administration. The other officers were *Daṇḍanāyaka* and *Rājaguru*. The *Nāyaka* and *Gauṇḍa* were the village officials. The village was the unit of administration. There used to be great assemblies known as *mahānāḍus*. The merchant guilds also played important role in Raṭṭa administration. In the Raṭṭa administration the king as supreme judge decided all important cases.

## 2

# FORTS

Forts in India have a hoary past. B.C. Dutt[1] in his book *Town Planning in Ancient India* has rightly remarked that "these fortifications in the form of ramparts and ambient trenches almost constituted an integral part of oriental as well as occidental town planning. So much so, we scarcely come across a description of any town which is silent about them." Earliest archaeological evidence of it, however, we find at Mohenjodaro and Harappa[2], wherein have been unearthed the vestiges of the fortifications. The Vedic literature accords copious references to the forts of its period. The *Ṛgveda* mentions the words *Pur,*[3] *Durga*[4] and *Dehi*[5] to mean rampart, fort strongholds or defence wall. The forts made of stone[6] (*Asamamayi*) and iron (*ayasī*)[7] are also known to the *Ṛgveda.* But the reference to the iron fort appears to have been used in the metaphorical sense. The same work also cites the forts with hundred walls (*satabhugi*).[8] The *Yajurveda Saṁhitas*[9] frequently denote to a word '*Mahāpura*' which means a great fortress, discriminating '*Pura*' in its size. The *Atharvaveda*[10] profusely uses the word '*Vapra*' to mean a rampart. It points out to a fort full of kine (*gomati*) and explains that this kind of fort was utilised to hold the cattle. However, these were temporary forts as opposed to those of medieval barony. Evidently, they were merely the places of refuge against an onslaught and ramparts of hardened earth with palisades and ditches. Pischel and Glender[11] are of the opinion that the Vedic Indian towns had wooden walls and ditches like the later Indian towns of Pataliputra known to Megasthanese[12] and the Pāli texts.[13] The later works like the *Brāhmaṇas* and the *Upaniṣads* also refer to the words '*Pura*' and '*Mahāpura*' to mean a fort.

Besides Vedic literature, the *Rāmāyaṇa*[14] and *Mahābhārata, Manu Saṁhitā*[15] and the *Brahmāṇḍa Purāṇa*[16] accord references to the forts. In the *Mahābhārata*, it is clearly stated that the cities should be established, supported and protected by one of the six forts.[17] The city of Indraprastha had series of moats (*parikabhi*) followed by high ramparts (*prākāra*), gateways (*dvārayaḥ*) and towers[18] (*saudyayaḥ*). Pāṇini refers to rampart (*prākāra*), moat (*parika*) and gates (*dvāra*) as important parts of a city and they served as main defences. Kauṭilya considers a fort as one of the seven constituent elements of the State. Elsewhere, he points out that "the heaven of the king and of his army is a strong fort." He divides the forts on the basis of their location into four classes,[19] viz. *Parvata* (hill-fort), *audaka* (water-fort), *dhavana* (desert-fort) and *Vanadurga* (forest fort). Of these, he prefers hill-fort as he considers it as most unassailable.

Kauṭilya in his *Arthaśāstra*, in the chapter on "*Durga vidhānam*" (chapter 24), delineates graphically the construction of the forts. He knew masonry walls, palisades, ditches and towers. Castles were also known to him. He was aware of the utility of the defence fortification and detached forts. He preferred to build forts where there was natural fortification. The shape of the fort as mentioned in the *Arthaśāstra* would be either circular or square. Kauṭilya's forts had ditches (*parikhas*). After ditches, ramparts (*vapras*) were built. Over the ramparts were built the towers. Between the two towers, gateways or *pratholi* were built. At intervals, there were covered seats (*indrakośa*). On the ramparts were provided covered passages for movements. There were also sloping ramps to get access to the top of the ramparts. Where gates were placed, ramparts were to be projected on both sides. The entrance gates had six pillars and were to be protected by doors with nails. Canals were constructed in the ramparts for the concealment of the arms. According to him, a fort defending 800 villages was called *sthānīya*[20], 400 villages *droṇamukha*,[21] 200 villages *kharavaṭa*[22] and ten villages *saṁgrahaṇa*.[23] Thus Kauṭilya describes a well-evolved stage of military fortifications.

Interestingly, the *Jātakas* are also not wanting in references to forts and fortifications. The commentary on the *Udaya Jātaka* (IV, 106)

(IV, 106) provides three names of the moats, viz., *udaka, kaddana* and *sukkha*, a water-moat, a mud-moat and a dry-moat. The cities of *Jātaka* period were all fortified with walls and ramparts, with buttresses, watch-towers and massive gates. In fact, the city of Vesali had triple wall around it, with gates and watch-towers.[24] Likewise, the cities of Mithila[25] and Potali[26] were provided with walls, gates and battlements. In the *Mahā-Umagga Jātaka*, we read the following. "He caused a great rampart to be built for the city. Along the rampart were watch-towers at the gates and between the watch-towers he dug three moats—a water-moat, a mud-moat and a dry-moat..." This was done as a defence against future danger.[27] The *Tandulanali Jātaka*[28] informs that the walls of Benaras (Varanasi) were twelve leagues round by themselves. The *Mahājanaka Jātaka* (No. 539) refers to Campa with its gate, watch-tower and walls.

The historians of Alexander the Great and Megasthanese speak of Pataliputra as a great city being surronded by wooden wall and ditch. Later, *Śukranīti Sāra*,[29] a treatise on polity, recounts vividly the forts and fortifications of the day. Śukra classified the forts into *parika*-fort enclosed on all sides by great ditches (*parika*); *parighā*-fort flanked by walls of brick, stone and mud; *vana* or forest-fort hedged by huge thorns and clumpse of trees; *Bhanva-durga* which had no water round about. The principalities of Rajaputana offer the standing examples of forts and fortifications, *Jala-durga* or water-fort which was encompassed by great sheets of water, and *Sahāyadurga* or help-fort which belonged to intrepid or friendly kinsfolk.

It can be known from the *kāvyas* of Kālidāsa that the capital cities of his time were protected by a strong wall called *Prākāra*,[30] *Vapralaya*[31] and *Pariveshṭana*,[32] the gates of which were closed by huge doors having strong bolts.[33] These ramparts of the city were encircled by a broad and deep ditch.[34]

The later work *Mānasāra*[35] of 5th-6th Century A.D. also refers to the forts and fortifications redundantly. In fact, it enumerates the names of the forts as *giri-durga* (hill-fort), *vana-durga* (forest-fort), *salila-durga* (water-fort), *paṇka-durga* (clay-fort), *ratha-durga* (chariot-fort), *deva-durga* (divine-fort) and *misra-durga* (mixed fort). Besides, *Viśvakarma Prakāsa*[36] also deals with the subject under the title "*Durga-nirṇaya*".

Interestingly, the account left by Huan Tsang also gives the idea of the forts known to him. He observes that all the towns of his period, however small they might be in their size, were often inclosed by walls. The Chinese pilgrim says: "The towns and villages have inner gates, the walls are wide and high...The earth being soft and muddy, the walls of the town are mostly built of bricks and tiles.[37]

However, the incipient or elementary type of fortification seems to be the thorn hedge. This was supplanted by the earthen bunds. They were fortified by a palisade of tree trunks. A development over this was wall masonries. Two walls were built with a filling of earthen rubble. The face of the outer wall was raised by a few feet and crenellated to give protection against arrows and other projectiles. Later on, towers were erected at intervals along the walls. It appears, Greeks were well-versed in this art of construction. Then Romans perfected foreign countries; castles were built on hills with declivitous sides. Then come detached forts. Thus, in the initial stages the forts took their shape as per the needs of the times.

Interestingly, the archaeological evidences have thrown a lurid light on the fortifications of the ancient period. The excavations at Mohenjodaro and Harappa[38] revealed many defensive structures such as ramparts, mudbrick walls and revetments. Generally, the first step of construction of the defences would be in the form of earthen bunds and ramparts. Such ramparts rising to a height of 2′ were extant at Mohenjodaro and Harappa. On this bund or rampart stood the main wall of mud-brick battered externally and internally with a basal width of 40′ and height of 35′. This wall was buttressed by rectangular towers or salients indicating an elaborate system of enfilade. Retained by the rampart and the lower part of the superimposed wall was a coeval platform of mud and mud-brick rising to a height of 33′. As the excavation would reveal, these pre-Vedic towns had their fortifications built in the three periods. Due to weathering and ruinous condition, the original baked brick revetment was rebuilt and thickened. Unlike the older work which was made with brick-bats, the new work was carried out with complete bricks. This phase represents the apogee of Harappan civilization. Subsequently the western corner of the defence was reinforced by an additional salient and two entrances of the western gate system were wholly or partially blocked. Apparently during this phase of occupation the Harappans were on the defensive.

Before the discovery of the Indus Valley Civilization, the walls of the old city 'Rajagriha', the modern Rajgir, were regarded as the only extant structural remains of the pre-Mauryan period.[39] The massive stone walls distending to a length of 25 to 30 miles along the crest of the hill are the fortifications of the Vedic town Rajagriha. The faces of the walls were built with untrimmed stones carefully filled and bounded together. They stand to a height of 11′ to 12′ with an average thickness of 17′-6″. Bastions were attached to the outside of the walls. They are square on plan and measured 47′ to 60′ in breadth. At intervals the fortification was provided with stairs of ramps to give access to the top. Later on these were supplemented by watch-towers or observatory posts at every strategic point. As mentioned in the Pāli work, 'Rajagriha'[40] is said to have possessed 32 large gates and 64 small ones. Of them only one gate of the outer fortification is visible. The inner city fort wall with its pentagonal plan was not furnished with any salients or ditches.

Excavations at Pataliputra disclose the prevalence of ditches and senile wooden palisades. There were regular ramparts and towers behind them. The town was encircled by rivers—Ganges in the north, Poonpoon in the east, Son on the south and west. Thus with this natural fortification, the city had as a second line of defence the mud ramparts. About a mile interior to these mud ramparts, was another line of defence which consisted of ditches. After the ditches stood the wooden palisade vestiges of which were exposed by Dr. Spooner in his excavations.[41] After the wooden palisades there was a brick wall.

The rampart exposed at Ujjain[42] hedged round an area of a mile and a half with a basal width of a little over 200′. The rampart was encircled by river Sipra on west and north and by a moat on the east and south. The moat was 80′ wide and 22′ deep in its original position. The rampart had a brick platform.

Besnagar had a wall and a ditch as defensive structures but no plan could be conceived as they were in ruins. Fortification at Sirkap[43] (Taxila) was massive. The stone wall inclosing the city wall was composed of random rubble in mud. Rectangular bastions at irregular intervals were provided. Only one gateway was exposed. The fortification of Sirsukh was constructed in rough rubble, faced with limestone masonry of the heavy diaper type. They were pierced with loopholes for the use of the defenders standing on the ground floor. The bastions were semicircular in plan instead of rectangular.

Excavations at Sisupalgarh[44] in Orissa State brought into light defences ascribable to the beginning of 2nd Cent. B.C. with three successive building phases. In the early Phase (Phase I) the defences constituted a massive clay rampart 25′ high and 100′ wide at the base. It was a made up earthen bund with stickly clay. On the top of the rampart occurred a series of circular holes, each one foot deep and arranged at regulal intervals of 1′-10″. These cavities were filled with laterite gravel and packed with clay.

During the Second Phase a layer of laterite gravel of 4′ to 6′ thickness was added to the top of the clay rampart. In the Third Phase, two brick-built walls 26′ apart were built over the top of the laterite gravel and the space in between them was filled up with mud and earth. The ramp of 3 to 4 feet thickness could well be perceived towards the interior of the fort and outside as well. The Phase IV does not seem to have followed the Phase III immediately. The fort had eight large gates, two on each side.

The fortification exposed at Ahichchhatra[45] in district Barielly is remarkable. It constitutes a brick-fortification wall extending in the shape of more or less an isoceles triangle with a perimeter of about three miles and a half. As a result of the partial exposition of this fortification at two places. two successive earthen ramparts beneath brick fortification are disclosed to view. The core of the earlier rampart had yielded Grey Ware pottery detable to 300-100 B.C. and its exclusive presence in the rampart or the first fortification must have been erected not later than 100 B.C. Besides, there was a partition wall dividing the fortification area into two sectors—eastern and western. In all probability the wall appears to have been erected in the later period in the life of the city.

Recent excavations at Nāgārjunakoṇḍa[46] in Andhra Pradesh exposed to view the vestiges of the city of Vijayapuri, the glorious capital of Ikshvākus in the 3rd Cent. A.D. Pertaining to it was exposed a fortification wall enclosing a trapezoidal area of 3000× 2000 feet. It distended along the right bank of the river Krishna on the west while on the south it ran over the Peddakundelugutta hill. Distinctly two building phases could be seen in this fortification. The Early Phase represented a rampart of morum or mud with basal width of 80′ and rested on the natural soil. At another place, beneath this rampart could be seen a flooring and a few hearths. The Second Phase represents a burnt brick wall of 9′ to 14′ thickness over the rampart. Save the portion overlaying the Peddakundelugutta hill, the fortification wall was surrounded by a ditch 12′ in depth and varying width of 74′ to 132′. The fortification had two main gateways on the east and west and a postern gateway on the northern side. Perhaps this postern gateway might have served as an emergency exit. Such postern gateways were not uncommon for a fortification in the ancient period. The defence wall at Sisupalgarh had one such postern gateway.[47]

The remains of the fortress traceable at Pithapuram[48] belonged to Eastern Chālukyan sovereignty and can be ascribable to 584 A.D. The fort in Gosmur[49], 38 miles away from Barhampore, was built in 832 A.D. by one Raghunatha Bunza Raja. The fort of Gwalior in Central India was constructed in the 10th Century A.D. The fort of Udayagiri[50] was built by one Langula Gajapathi of Orissa. The massive mud built and stone-built fortifications of Kākatīyas (1150—1323 A.D.) and the forts of the Reddi kings of South India at Kondapalli, Kondavidu, Vaddigudem, etc., speak highly of their military genius in the construction of the forts.

Prof. A.S. Altekar in his book *Ancient Towns and Cities of Gujarat and Kathiawad* describes graphically the walled towns of the region. Mr. Kanakasabhai in his book *The Tamils 1800 Years Ago*, interestingly, gives the account of the fortifications of certain cities of Tamil land such as Uraiyur, Madras, Vanchi or Karur, Kanappar and Takadur.[51] Besides, contemporary epigraphic material also throws lurid light on the defences of a few cities. In one of the inscriptions Kanchi, the glorious capital of Pallavas, has been described as having unsurmountable high walls inclosed by a huge moat.[52] The Gadwal Plates of Vikramāditya I refer to the city in almost similar lines.[53] Again the Madras Museum Plates of the Early Pāṇḍya king, Nedunjadaiyan (Jatilavarman) describe the fortified city of Vilanam in details.[54]

Among the forts of Deccan the noteworthy ones are Daulatabad, Mudgal, Bidar, Bijapur and Golconda. The impregnable fort of Daulatabad or Deogiri otherwise known as Holy Fort situated on a hill of 600′ was the capital of Yādava dynasty in the 12th Cent. A.D. Later in 1308 it fell in the hands of Sultans of Delhi who renamed it as Daulatabad (the City of Fortune). The later Sultans of Bhāmini dynasty strengthened the fort by building stone battlements and round bastions.

The fort has a broad moat running right round and series of concentric ramparts are built on a rock. The steps are cut in the rock and the base is closed by an iron gate, the only gate through which the fortress can be entered. The outer wall has a perimeter of about three miles and between it and the citadel are three inner walls each loopholed and battlemented and each furnished with fortified gateways.

The fort at Mudgal was an important outpost of the Kākatīya kingdom and later with the establishment of Bhāmini kingdom at

Gulburga it became the centre of warfare between the Bhāmini Sultans and Hindu Vijayanagara kings.

The fort has a wide moat beyond which there is a scrap with row of massive bastions. The construction of the bastions has been remodelled for the use of the guns. The door of the outermost gate is studded with iron spikes.

The fort of Bidar built in 1432 A.D. has lofty sandstone walls standing to a height of 50′ and extending three miles in circumference. A triple ditch 75′ wide and 45′ deep hewn on the solid rock defends the fortress. The fort of Bijapur was constructed in the time of Sultan Ali Adil Shah in 1546 A.D. Elphinstone who visited the fort in 19th Century writes, "The ditch and rampart enclose a circle of six miles circumference. The rampart is of earth supported by strong walls and large stones..."

The cyclopean fort of Golkonda is inclosed by a potent crenellated wall of granite about four miles in circumference. There are 87 semicircular bastions each standing to a height of 50′ to 60′ and built of massive blocks of granite cemented together. A deep moat encircles the fort. The gate doors of the fort are studded with pointed iron spikes to retard elephants from battering them down. Sir Jandunath Sirkar, the celebrated historian observes, "The eight massive gates could have safely defied any artillery known to the 17th Century. On the walls were mounted a vast display of cannon, some of them being very fine specimens of medieval gun-founder's art... "

Later date Moghal forts such as fort of Agra, Fatehpur Sikri, Delhi, Allahabad and Lahore, show distinct development in the fort construction. Forts of Udayapur, Jaipur, Jodhpur and Bikaneer in Rajaputana are the glowing examples of Rajpur forts.

Raigarh fort of Maharashtra and rubble and stone masonry capacious walls of Vijayanagara and the forts at Gooty, Penugonda, Gurramkonda, Chandragiri, Adavani of the Vijayanagar period, give telling testimony to the precontrived notion of the fort construction in past India. Thus the forts of India were of strategical importance and remained indispensable for a town to be militantly fortified.

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## 3

# TOWN PLANNING

Town planning in India is very senile and has a hoary antiquity. Kauṭilya's Arthaśāstra gives a fabulous account of town planning in ancient India. The treatise *Mānasāra*[1] throws a lurid light on this subject. In such wise India affords a wonderful array of town planning practised in hoary times.

It had always been the case, as far as India is concerned, whenever a site for a town had to be sought for, the old ruins of the erewhile existed towns were harped upon. In their absence fresh ones were selected. Generally, towns were built on the river banks or at the places where there was adequate water supply. It is not a problem for such sites in a country like India which is replete with a net-work of rivers.

The towns, in Ancient India, were divided into different categories according to their forms and dimensions. Thus, to first group pertained eight types[2] viz., *Daṇḍaka*, *Sarvatobhadra*, *Nandyāvartha*, *Padmaka*, *Svastika*, *Prastara*, *Karmuka* and *Chaturmukha* while the second consisted of five types viz., *Grāma*, *Kheta*, *Kharavata*, *Durga* and *Nagara*.

*Mānasāra* classified the ancient towns on the basis of their shapes and method of their street planning, folk planning and temple planning. *Mayamuni* based his classification mainly on planning of streets. *Kamikagama* divided the villages after enumerating all the types named by *Mānasāra* and Mayamuni.

The *Daṇḍaka* type of town (Fig. III. 1) took a rectangular shape and it was surrounded by a ditch and a rampart. According to

*Māyamatam*[3], "Its streets are straight and cross each other at right angles at the centre running west to east and south to north. The village has four gates on four sides. Even if it has only one street yet it is also called *Daṇḍaka*". Here every unit was rectangular with a road system running across all sides. Roads were furnished with footpaths on one side. According to *Mānasāra*, the width of the streets varied from one to five daṇḍas. According to *Kamikagama* in this type of town, the offices of the village officers and of the village panchāyats were to be located in the eastern portion of the town. This type of town appears to have been built with a sense of artistry transcending chess-board type of town planning.

The *Sarvatobhadra* type of town planning (Fig. III, 2) was different from the above described type. Here, it was a square one with openings or outgates (*bhadra*) on all (*Sarvatas*) four directions. Temple dedicated to Traid—Brahma, Vishṇu, Śiva occupied the central place. The entire town was divided into four main blocks by two intersecting main roads. The internal streets were lined with a single row of houses, while double row of houses ranged along the outer streets. In this case also the town was surrounded by a ditch and rampart. The town divided into various parts, each of which was allotted castewise. Pilgrim's pavilions, rest houses, colleges, halls, etc., occupied the corners of the town.

The *Nandyāvartha* type of town planning (Fig. VI, 1 and 2) was either square or oblong in form with four gates facing the four principal directions. The *Māyamata* gives the following succint description of the towns of this tppe. "The village has five high ways running from east to west, while the number of main thoroughfares running traverse to them is variously recommended from thirteen to seventeen. It has four main gates on the four sides. Because of the peculiar orientation of its gates and numerous streets it looks like mystic figure *Nandyāvartha*. Hence its significant designation."[4]

The town plan was enclosed by a rampart. Temple occupied a mid-most place just at the point where the two main roads running east-west and south-north crossed each other. The Brāhmins occupied the central four streets, the Kshatriyas the next, the Vaiśyas next and the Śūdras last, all according to their profession. This arrangement was done according to the order laid down by Manu.

In case of *Padmaka* type of town planning (Fig. I 1 & 2), it resembled a lotus flower (cyma recta) and had four, eight, twelve, sixteen corners and faces. As in other cases, the temple took the central place while the other portions were marked out denoting their intent. Thus the shops were located at the southernmost face. King monopolised the northernmost portion while the eastern and western portions were utilised as marketing places for vegetables and meat.

The *Svastīka* type of town planning (Fig. II, 1) was devoid of any definite form of the plan. The road system in this type was peculiar and distinctive. It had two main streets, one running from east to west and the other from south to north. But the by-roads meeting the main streets were so arranged as to give the traffic plan the form of a *Svastīka*. In the centre occupied a temple of worship. Anahilapattana the old capital of Guzarat was built according to this plan.[5]

The *Prastara* type (Fig. II, 2) which was either square or rectangular was intersected equally into four parts by the two main roads. In accordance to the economic status of the citizens, the areas were allocated in the town. Etymologically, *Prastara* means a village that resembles a couch. According to Mayamuni the village was intersected by three streets running from east to west and by several traverse roads numbering from three to seven.

The *Karmukha* or bow form of town (Fig. IV, 2) was semi-circular and suggestive of its name. The towns of *Kheta* and *Kharavata* were planned after this. Road system of this township (Fig. V, 1) was very interesting. The main road ran at right angles to the diameter of the semi-circle while other roads ran parallel to it or crossed at right angles. As usual, temple took the central place.

The *Chaturmukha* form of town (Fig. V, 2) had four faces. It was circumscribed by a fort wall and was divided into eight equal parts by means of roads interlacing each other.

According to dimensions, town was divided into five distinctive types of the second group, as mentioned above, viz., *Grāma*, *Kheṭa*, *Kharavaṭa*, *Durga* and *Nagara*.

The primitive sense of the word '*grāma*' occurs from the *Ṛig-Veda* and the vedic Indians lived in villages.[6] The villages of that period were open, though perhaps a fort might on occasion be built inside.[7] Interestingly, the *Mānasāra* vivifies the general plan of the village.

The *Mānasāra*, however, makes no difference between a village, town, and a fort, since all the places intended for the residence of the people and town is only an extension of the village while a fort is nothing but a fortified town with over-emphasis on its defence.

According to the same treatise; the smallest unit of a town should not be less than 100/200 daṇḍas while the largest should be upto 7200/14200 daṇḍas. The plan of the village was not always a square but more often a rectangle with the longer sides running east to west so as to secure a proper circulation of the sun's rays.

Each village was encircled by a wall made of bricks or stones[8] and high enough to prevent leaping over. After this wall was a ditch, broad and deep to remain as a formidable obstacle to the invaders. There were four main gates at the centre of the four sides and at four corners. Inside the wall there was a spacious street around the village which was generally utilised as circumambulatory path, on some occasions, daily round of the police, open air drive and such public corners. Two other large streets ran from one gate to another in the middle of the wall on each side. They intersected each other at the centre of the village where a temple or a public assembly hall was situated. The village was thus divided into four main blocks, each of which in turn was subdivided into many blocks by streets which were straight from one end to another. The ground floor of the dwellings on the main street had foot paths and houses only on the side. These houses were mainly secular structures like schools, colleges, libraries, guest houses, etc. Along the other streets, on either side of them were built residential buildings. The drains were routed towards the slant of the village. Tanks and ponds were dug in all inhabited parts with a view to keep them within the reach of the inhabitants. Parks and gardens took a similar place in the village. The people of the same caste or profession were generally housed in the same area. E.B. Havel[9] has rightly remarked that the villages' plan was a practical lay-out and had provided the best defence. The easterly axis of the plan ensured that the principal streets were sanctified by the rays of the sun sweeping through them from morn to eve while the intersection of main streets by shorter ones running north and south provided a perfect circulation of air and utmost benefit of the cool breeze.

The *Kheṭa* type of town (Fig. V, 1) was a special plan with a distinct geography and features. The arrow-shaped three main roads and three covering roads divided the entire area into some fifteen blocks wherein the quarters of the common people were allowed.

The *Kharavaṭa* type of plan (Fig. IV, 1), circular in shape, had eight diagonal roads terminating at the circumference of the central circle and four main circular roads. The towns *Kheṭa* and *Kharavaṭa* possess five, three or two roads respectively. The width of the road was according to the size of the town.

Considerable attention was paid to the maintenance of the roads. The *Arthaśāstra* of Kauṭilya mentions clearly that a special officer was appointed to supervise the activities of the town. He was responsible for the upkeep of roads, buildings, tanas, temples, etc. Fines were levied for their improper use. Dead bodies of minor creatures were thrown out-side the town limits from the view point of the sanitary conditions. Caste system played an important part in zoning the town. People of the same caste generally lived together in a group. Thus there were quarters of Brāhmins, shoe-maker, black-smiths, etc. But the *Arthaśāstra* defines the system of the distribution of the population clearly.

According to Kauṭilya's *Arthaśāstra*, "Royal mansions shall be constructed on fortfied grounds. Amidst the houses of the people of all the four castes and to the north from the centre of the ground inside the fort, the king's palace, facing either north or the east shall be constructed occupying one-ninth of the whole site inside the fort. Royal teachers, priests, ritualitic places, water reservoirs and ministers shall occupy east by north to the palace. Royal kitchen, elephant stables and the store houses shall be situated on sites east by south.

"On the eastern side, merchants trading in perfumery, garlands, grains and liquids together with expert artisans and Kshatriya caste people still have their habitat.

"The exchequer, the accounts office and various manufacturing concerns shall be located on sites south by east. The store-house of forest produce and the arsenal shall be constructed on sites south by west.

"To the south, the superintendents of the city, of commerce, of manufacturing concerns and of the army and those who trade in cooked rice, liquor and flesh, besides prostitutes, virtuosos and the the people of Vaiśya caste shall live.

"To the west by south, stables of asses, camels and working houses shall be set up. To the west artisans, manufacturing worsted threads, bamboo mats, skins, armours, weapons and gloves as well as the people of Śūdra caste shall have their dwellings. To the north by west emporiums and hospitals shall be set up. To the north by east, the stables of cows and horses shall be constructed. To the north, the royal tutelary deity of the city, iron-smiths, artisans working on precious stones and Brāhmins shall reside. In the several corners, guilds and corporations of workmen shall reside. In the centre of the city should occupy the temple. In the corners, the guardian deities of the ground shall be appropriately set up. Either to the north or the east, burial grounds or crematoriums shall be situated. For the noble class the cremation ground shall be to the south of the city. Heretics and chaṇḍālas shall live beyond the burial grounds."

There were three main sources of water supply. As stated above, villages or towns generally are situated on the banks of rivers to shun water scarcity. Apart from this, kings and rich people were benevolently disposed with the result that they constructed big tanks or water reservoirs which became perennial source for animals. Besides, innumerable huge wells were sunk for this purpose, and Kauṭilya mentions that ten families could make use of one such well.

This is in short town planning practised in ancient India. The ancient towns like Ayodhya, Indraprasta, Pataliputra and Madura are the glowing examples and bear testimony for all time to come. The system of ancient town planning is so exemplary that very many modern towns and villages have wistfully followed the plans so ably laid out in the hoary past. E. B. Havel who made an exhaustive study of the Indian civilization asserts that "the most advanced science of Europe has not yet improved upon the principles of the garden cities of India based upon the Indian village plan as a unit..."

"It will probably be a revelation to modern architects to know how scientifically the problems of town-planning are treated in these ancient Indian architectural treatises. Beneath a great deal of mysticism, which may be scoffed at as pure superstition, there is a foundation of sound common sense and scientific knowledge which should appeal to the mind of the European expert."[10]

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2. Vide Sketches : and see also Ram Raz, *Essay on the Architecture of Hindus*, Plates XLIIa to XLVI for detailed Plans. (London, 1934). In the present article most of the Sketches are taken from Dutt's *Town Planning in Ancient India* (Calcutta, 1925). I am greatly thankful to Mr. Nambirau, who has prepared the necessary sketches of this article.

3. Chapter 9, 11 82-84
4. Dutt. B.B. *Town Planning in Ancient India*, calcutta, 1925.
5. Hemachandra in his Sanskrit *Dvyāsraya* (p 4 ff) described it in detail-1, 44. 10, 114, ii. 12, 7. so on. See Acharya, P.K. Mānasāra, *An Encyclopaedia Hindu Architectnre*, Vol VII
6. *Śatapatha Brāhmaṇa* XIII 2 4 2 *Aitareya Brāhmaṇa* 111, 44
7. Zimmer, *Attinbisches Leben*
8. Of Stone Built walls such as ancient Indian fortified village or town possessed. There is extant example older than the 6th Cent. B.C. in the hill fortress Girivraja near the modern Rajgir said to have been planned by Maha Govinda, the master builder (Rhys David, *Buddhist India*, London, 1903. p. 37.)
9. Havell, E.B., The History of *Aryan Rule in India* (Delhi), pp. 135-136.
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# 4

# TREES, HERBS AND FORESTS

Ancient Indian literature makes innumerable references to trees, herbs and forests. As early as in Vedic literature, we get the term *vrikṣa* meaning a tree[1]. Elsewhere, words like *darvahara* (gatherer of wood), *vanapa* (forest guardians), etc. are also mentioned[2]. The subsequent Sūtras[3] also enumerate trees[4] like *nyagrodha, udumbara, khadira, palaisa* and *bilva.* Interestigly, the *Gṛihya Sūtras* allude to the Vedic observance 'consecration of trees'. Pāṇiṇi, the celebrated grammarian of the 5th century B.C., speaks of two varieties of forests namely natural forest like *Puragavana, Misrakavana* and cultivated groves of trees such as *āmravana, khadiravana, ikshuvana*[5]. He calls a large forest *araṇya* which *Katyayana* connotes as *araṇyāṇi.* Further, he speaks of *ashadhivana* and *vanaspativana* classifying them on the basis of their produce. Again, the word *vrikṣha* is synonymous with *vanaspathi* in *Pāṇiṇi* Sūtras (iv. 3. 135).

References to forests and forest trees in the epics are plentiful. The *Rāmāyaṇā* lists the forests like Pañchavati, forest on Citrakūta, Sahya and Malaya and forests at Lanka. The forest trees known to the *Rāmāyaṇa are many*. The Pañchavati forest alone contained trees like *śāla, tāla, tamāla, Kharjura, panasa, tinśa, nivāra, punnāg, āmra, aśoka, tilaka, śyandana, candana, nīpa, campaka, khadira, aśvakarṇa, ketaka, lakuca, śamī, dhava,* and *pāṭala*[6]. The *Citrakūṭa mountain* carried trees of *gāmbhārī, śāla, madhūka, badarī, tilaka, tinduka, āmalakī kadamba, dādimba betra, indrayava, karmaraṅga, panasa, pītaśāla, piyāla lodhra, jambū* and *āmra*[7]. Rama noticed a beautiul forest attached to Sahya and Malaya mountains which teemed with trees like *jambū, karañja, punnāga, baṭa, tinduka, plakṣa, aṅkola, karavīra, tiniśa, sindhuvāra, aśoka, tilaka, cūta* and *campaka*[8].

The great forest of Laṇka contained trees such as *campaka, aśoka, vakula, śāla, ṭāla, tamāla, panasa, nāgakeśara, arjuna, kadamba* tilaka, *karṇikāra* and *palasa*[9]. The wood of *khadira* and *ślesmataka* trees were used in making the sacrificial posts of Hindu rites like Aśvamedha, etc.[10]. In the Aśvamedha sacrifice performed by king Daśaratha the wood of *khadira* was used in making sacrificial posts[11].

The epic Mahābhāratha also mentions a number of trees. In Raivataka forest alone Balarāma the brother of Kṛishṇa saw the trees like *āmra* (mango), *āmarātaka, cocoanut, vilva, jīvaka, darimba,* (pomegranate), *vīapuraka* (kind of citron) *kadamba, pārāvata* (*guava*), *kīṅkola, nalina, āmlovetasa, bhallātakī, āmalaka, harītaka, vibhītaka, iṅguda, aśoka, punnāga, keṭakī, vakula, campaka, saptaparṇa, devadāru, śāla, tāla* and *kimśuka*. In the *Mahābhārata*, the forest Daṇḍakāraṇya is alluded to at several places and elsewhere it was limited to the source of the river Godāvarī[12].

Kauṭilya, in his *Arthaśāstra* gives ample information regarding forestry in his time, and the forest department as then constituted. He speaks of a Superintendent of forest produce, *Kupyadakṣha* (who safeguarded the produce of the forest). A number of forest guards were appointed to assist him. The persons who damaged forest produce were severely fined and at times were asked to compensate for the loss[13]. But cutting off the trees or branches for utilising them in making the axles for cart wheels in the days of epidemics and calamities was not an offence. The economic importance of the various kinds of forest produce was very high as they provided raw materials for industries like ship or house-building, for making ploughs or chariots, for obtaining oils, firewood and fodder. Ores of various metals required for metallurgical industries were found in the forests. The medicinal plants obtained in plenty provided good sources of drugs for the medical world[14]. Kauṭilya gives a long and interesting list of forest trees including teak and also mentions forest produce like hides or skins of wild animals, bones, etc., in his *Arthaśāstra*.

Kauṭilya also stresses the importance of the forests from the military point of view. According to him, 'the superintendent of the forest produce shall carry on, either inside or outside (the capital city), the manufacture of all kinds of articles which was necessary either for the life or for the defence fort.'

Much can be known from Jain and Buddhist literature about the forestry of those days. Terms like *vana*, *vana-khanda*, *vanaraji* and *kanana*, all meaning a forest, occur in the Jain texts[15]. They mention trees like *nimba*, *āmra*, *jambū*, *śāla*, *aṅkola*, *bakula*, *palāsa*, *bibhītaka*, *bilva*, *āmalaga*, *phaṇasa*, *dāḍima*, *aśvattha*, *udumbara*, *vaṭa*, *nandi*, *tilaka*, *sirīṣa*, *saptaparṇa*, *lodhra*, *candana*, *arjuna*, *tāla*, *tālatamala*, etc. These trees provided the country with the materials for the construction of houses, vehicles, etc. Besides various kinds of bamboos, grasses, medicinal herbs and roots also get mentioned in that literature. Some people took up professions[16] like *vaṇakamma* dealing with wood and tree-felling, and *Iṅgālkamma* dealing with charcoal prepared out of wood. There were also *kaṭṭahāraga* (wood-gatherers), *pattaharaga* (leaf-gatherers) and *lanaharaga* (grass-cutters)[17].

Buddhist literature mentions trees like *nagarukkha* and *diparukka* in Pāli texts and commentaries. An ornamental plant called *malavacca* is referred to in Vinaya texts[18]. The *Samyutta*[19] speaks of mightly trees like *bo* (*assantha*), banyan, (*nigrodha*), wave-leafed fig (*pilakkha*) bunched fig (*udumbara*), wood apple (*kapitthaka*). At several places Jatakas refer to poison trees (*visharukkha*). Interestingly Buddha Gosha classifies the trees as *ucca* (high), *nica* (low), *kuddaka* (small), *mahata* (big), *kala* (black), *seta* (white) etc. Thus a good deal of Botanical information can be culled from the literature of the period.

It appears that in the Jātaka period forest administration had a high standard of efficiency. The *vana-pacārā*, forest lands were many and they provided adequate materials (*bhaṇḍaṁ*) of utilitarian value. The *vanacarakas* (the foresters) were there always seeking these materials. These forest produces were the unfailing source for the wood-gatherers (*kaṭṭhahārakas*).

*Sukra-Nitisāra* of Sukrācārya gives ample information about the forestry of the day. The treatise informs that a superintendent was kept in charge of parks and forests. He was an expert in plant science and had full knowledge of how to administer soil and water timely to the trees. He was also in the know of their medicinal properties[20]. According to the same treatise, a forest of six *yojanas* (48 miles) should have a good royal path (*rājmārg*)[21]. Further, the treatise asserts that the Sumantra (Finance Minister) should keep the king always informed about the number of forests, villages and cities to enable him for preparing budgets and settlements, etc.[22]. It also lays down that the king should maintain wild trees in a forest. The good ones should be planted at a distance of twenty cubits, the middlings at a distance of fifteen cubits, the ordinary ones at a distance of ten cubits from one another. The list of trees given in *Sukranītisāra* includes *uduvarṇa* (Ficus glomerata), *aśwatha* (the holy fig tree), *vaṭa* (banyan), *chiñchā* (tamarind), *chandan* (sandal), *gharabala* (lime), *kadamba* (*Anthocephalus indicus*), *aśoka* (*Fonesia asoka*), *vakula*, *vilwa*, *cimrita*, *kapitthaka*, *āmra*, *punnāga*, *champaka*, *nīpa*, *koka*, *simṣapa*, *jambira*, *kharjūra*, *devakaraja*, *dhatri*, *lakucha*, etc. The wild plants consisted of *khadira* (catechu) *asmanta*, (oxalis), *saka* (bean),*agnimatha*, *syaunaka*, *vabbula*, *tamāla*, *śāla*, *arjuna*, *palāsa*, *saptaparṇa*, *śdmī*, *lunna*, *karamaṇḍa*, *iṅgudī*, *bhūrja*, *kanruka*, *puṣkara*, *pitadru*, *vibhītaki*, *madhūka*, etc. [23]. *Sukranīti*, also suggests that the dungs of goat and sheep, the powders of *yava* (barley), *tila* (sesamum) and water should be kept together for seven nights. These would act as good fertilizers to the trees. The application of water to these enriches the growth in flowers and fruits of all trees.

Kālidāsa's references to forest trees are many. In his kavyas[24] he enumerated many trees like *kovidāra punnāga*, *saptaparṇa*, *tambuli*, *puga*, *assota*, *sahakara*, *tālī*, *plakṣa*, *saudha*, *saptacchanda*, *pārijāta*, *śamī*, *aśoka*, *syana*, *tamāla*, *lodhra*, *devadāru*, *śāla kṛishṇagru*, *kharjūra sarala*, *kolaka*, *sallaka*, *nīpa*, *harichandana*, and *atimukhta*. Referring to great forest Daṇḍakāraṇya, he informs in *Raghuvaṁśa* that it extended upto the borders of the Kalinga country[25]. He also stresses the economic importance of the forests and their produce. Besides fuel and building timber, other materials namely the skin of *ruru*, musk (*mṛiganābhi*) obtained from the navel of the musk deer, lac and *chamri* were of great value in the everyday life of the people[26].

Thus, references to the trees, herbs and forests can be gleaned from the ancient Indian literature through the ages. It can be seen that during days of Kauṭilya the importance of forests was appreciated, and the materials obtained therefrom were highly valued, and a fairly good attempt was made to control the exploitation of the sylvan produce. Later Sukracarya also in his work on Hindu policy '*Nītisāra*' stresses the value of the forests and speaks about the need of expert officials well read in the plant sciences for the care and growth of the trees and plants. The love of some poets like Kālidāsa for trees, gardens and forest scenery finds expression in the references to the trees, forests, etc., in their *kāvyas*.

## APPENDIX

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|---|---|---|
| 1. | Āmalaga<br>Āmalaka | *Emblica officinalis* |
| 2. | Āmara | *Mangifera indica* |
| 3. | Āmra | *Spondias pinnata* |
| 4. | Āmrataka | *Spondias pinnata* |
| 5. | Aṅkola | *Alangium salviifolium* |
| 6. | Arjuna | *Terminala arjunia* |
| 7. | Asmanta | *Oxalis* |
| 8. | Aśoka | *Saraca indica* |
| 9. | Assantha, Aśvatha | *Ficus religiosa* |
| 10. | Assota | *Juglans regia* |
| 11. | Aśvakarṇa | *Shorea robusta* |
| 12. | Atimukhta | *Hiptage benghalenis* |
| 13. | Badarī | *Zizyphus jujuba* |
| 14. | Bakula | *Mimusops elengi* |
| 15. | Bhallāṭaka | *Semecarpus anacardium* |
| 16. | Bhūrja | *Betula utilis* |
| 17. | Bilva | *Aegle marmelos* |
| 18. | Bo | *Ficus religiosa* |
| 19. | Campaka | *Michelia champaca* |
| 20. | Candana | *Santalum album* |
| 21. | Cincā | *Tamarindus indica* |

| | |
|---|---|
| 22. Dāḍima, Dāḍimba | *Punica granatum* |
| 23. Devadāru | *Gedrus deodara* |
| 24. Devakharja | *Pongamia pinnata* |
| 25. Dhatri | *Woodfordia fruticosa* |
| 26. Dhava | *Anogeissus latifolia* |
| 27. Gambhale | *Citrus sp.* |
| 28. Gāmbhārī | *Gmelina arborea* |
| 29. Harītaka | *Terminalia chebula* |
| 30. Iṅguda | *Balanites aegyptiaca* |
| 31. Iṅgudī | *Balanites aegyptiaca* |
| 32. Jambi, Jambū | *Syzygium cumini* |
| 33. Jambira | *Citrus medica* |
| 34. Jīvaka | *Terminalia tomentosa* |
| 35. Kadamba | *Anthocephalus cadamba* |
| 36. Kapitthaka | *Feronia limonia* |
| 37· Karamaṇḍa | *Carissa carandas* |
| 38. Karavīra | *Nerium odorum* |
| 39. Karṇikāra | *Pterospermum acerifolium* |
| 40. Khadira | *Acacia catechu* |
| 41. Kharjura | *Phoenix sylvestris* |
| 42. Kiṁśuka | *Butea monosperma* |
| 43. Koka | *Phoenix sylvestris* |
| 44. Kovidāra | *Bauhinia variegata* |
| 45. Lakuca | *Artocarpus lakoocha* |
| 46. Lodhra | *Symplocos racemosa* |
| 47. Madhuka | *Bassia latifolia* |
| 48. Nāgakeśara | *Mesua ferrea* |
| 49. Nigodhra, Nyagrodha | *Ficus benghalensis* |
| 50. Nimba | *Azadirachta indica* |
| 51. Nīpa | *Anthocephalus cadamba* |
| 52. Palāsa, Palaisa | *Butea monosperma* |
| 53. Panasa, Phanasa | *Artocarpus heterophyllus* |
| 54. Pārāvaṭa | *psidium guava* |
| 55. Pāṭali | *Stereospermum suaveolens* |
| 56. Piyāla | *Buchanania lanzan* |
| 57. Plakṣa | *Ficus infectoria* |

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|---|---|---|
| 58. | Punnāga | *Calophyllum inophyllum* |
| 59. | Śāla | *Shorea robusta* |
| 60. | Śamī | *Salmalia malabarica* |
| 61. | Saptaparṇa | *Alstonia scholaris* |
| 62. | Salala | *Pinus sp.* |
| 63. | Siṁśapā | *Dalbergia sissoo* |
| 64. | Sindhuvāra | *Vitex negundo* |
| 65. | Śirīsa | *Albizzia lebbek* |
| 66. | Ślesmātaka, Ślasmātaka | *Codia latifolia* |
| 67. | Syandana | *Ougeinia dalbergioides* |
| 68, | Tāla, Tali | *Borassus flabellifer* |
| 69. | Tamāla | *Cinnamemum tamala* |
| 70. | Tila | *Sesamum indicum* |
| 71. | Tiḷaka | *Symplocos racemosa* |
| 72. | Tidduka | *Diospyros peregrina* |
| 73. | Udumbara, Uduvarṇa | *Ficus glomerata* |
| 74. | Vabbula | *Acacia arabica* |
| 75. | Vadara | *Zizyphus jujuba* |
| 76. | Vakula | *Mimusops,elengi* |
| 77. | Vaṭa | *Ficus benghalensis* |
| 78. | Vibhītaka, Vibhītaki | *Terminalia bellerica* |
| 79, | Vilwa | *Aegle marmelos* |
| 80. | Vijaūraka | *Citrus sp.* |
| 81. | Yava | *Hordeum vulgare* |

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8. *Ibid.*, *Laṇka*; kaṇḍa; 4th chapter
9. *Ibid.*, 39th chapter
10. *Ibid.*, *Ādikāṇḍā* : 14 chapter; canto, xiii, Girffiths' translation, p. 25.
11. *Ibid.*, *Āyodhya kāṇḍā* : 14th chapter
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14. K.R. Shah : *Ancient foundations of Economics in India*, pp. 87 f.
15. *Bhagavatī Ti* : 57, *Anu-cu* p. 53
16. *Uvā* 1, p. 11; also cf. *VyaBhā* 3.89*: Ācā*, 11.2.303
17. *Nāyā*, 13 p. 103; *Bṛh Bhā*, 1.1097, *Anu. Sū.* 130
18. *Vinaya*, 11.12; *Viṣuddhimagga*, 172, 174
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21. *Sukranītisāra*, Line 528-9, chap. I. p. 35
22. L. 207-208; chapter II. page 73
23. L. 115-122; chap. 4. page 166
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25. *Raghuvaṁśa*, XII. 9.
26. *Ibid.*. III. 31; IV. 65; *Ritu*, VI, 12.

## 5

## HORTICULTURE

The Science of Horticulture in India is very old and finds its incipience in the vedic period. A reference to the construction of a garden and its dedication to public use, readily we get in the *Rigveda*[1] *Śānkhāyana* in his *Gṛhya Sūtra*[2] describes this vedic observance under "The consecration of a garden".

The great epics[3] the *Rāmāyana* and the *Mahābhārata* also speak of groves and pleasure gardents at several places. The *Sundarakāṇḍā* of the *Rāmāyana* refers to the innumerable groves known to the epic age. A graphic description of the *Aśokavanika* of Rāvana's palace is given in the chapters of XIV and XV of *Sundarakāṇḍā*.[4] It is described as enclosed by a massive wall. Within the enclosure was located Sylvan grove with the *Śāla*, *Aśoka*, *Bhavya*, *Campaka*, *Uddalakkā*, *Nāga* and the *Mango* trees. A variety of water tanks with attached bathing ghats were spotted here and there in the grove. The tanks contained full blown lotuses and lillies. They actually served as a special retreat for geese, swans *chakravākas* and a host of other aquatic birds. Near these tanks was located a hill decked with trees. A river flowed to the garden from this hill. On either side of the banks of this river could be seen over hanging creepers and line of trees giving a beautious view to the bystander. Behind this hill was a lotus pond. The magnificient buildings also were found in this garden. Every where were to be seen rows of artificial mounds and flowering groves[5].

At another place, this garden is compared with the Nandanavana, the celestial garden, containing various animals, birds, palaces, and mansions, embellished with ponds teeming in elegant lotuses and water lillies, provided with many cosy seats, sylvan retreats, bowers and arbours with charming flowers and fruits. The *Karṇikāra*, the *Punnāgas*, the *Saptaparṇa*, the *Campakās* and the *Aśoka* trees were the monopolised flower plants in this garden.[6]

The same epic informs that the city Ayodhya was garnished with lofty buildings, green bowers and Mango groves. Around all these, a long row of *Śāla* trees seemed like a girdle. The parks and pleasure gardens of the city became the rendezvous of lovers and were the places of congregation for the public in the evenings.[7] The *Mahabhārata* also gives allusions to the pleasure gardens and garden houses at many places.[8] Frequently, it mentions about blue water lillies, *Pīlu* and *Raupitaka*[9].

The *Markaṇḍeya Purāṇa* cites the flower plants[10] *Karṇikāra*, *Pārijāta Kovidāra*, *Mandāra*, profusely. The *Matśya Purāṇa* speaks of the *Puṣphavātikas* at several places.[11]

Apart from the vedic, epic and puranic gleanings, the Jain and the Buddhist works also accord references to Horticulture. The Jain literature profusely refers to the creepers, flowers and plants like *asoga vāsantī*, *cūya*, *aimuttaya*, *sāma*, *Navamālika*, *Koranṭaka*, *mallikā nimba amba*, *Jambū*, *Śāla*, *Palāśa Vilva āmalaga loddha*[12] etc. The Buddhist works are again replete with the description of the pleasure gardens. The pleasure gardens of Bimbhisara and Asoka are note worthy.

The *Veṇu vana* and the *aṁba vana* in the vicinity of Rajgriha, the *Māha vana* near Vaisali, the *Nigrothārama* near Kapilavastu and the *Jetavana* near the out skirts of sravasti were all Royal gardens in the initial stages and bear glowing testimony to the gardens of the Buddhist period. The queen Mallika's garden at Sravasti was encompassed beautifully on all sides by rows of *Tiṇḍuka* or *Timbura* trees. This flower and fruit garden was furnished with sheds. Subsequently, all these gardens were transmitted into permanent retreats for the rovers of the different orders. Thus, a Royal park was a binding appendage to the Royal city. In the 6th century B.C. India had witnessed several groves of Anjana, amba and sala at upavattana and Kushinara[13].

The *Jātaka* stories also refer to gardens and parks at several places[14]. Among the groves, the Mango groves were evidently a common feature.[15] A female lay desciple built a hermitage with a grove of Mango tree for Buddha to live in.[16] The Aśoka trees were not unknown to the Buddhist literature.[17] Aśvaghośha has described it as the augmentator of the lover's sorrow[18]. Buddhaghośha speaks about *champaka* groves redundantly and inferms that *champaka* trees were in plenty in the city of Champa[19]. (Bhagalpur District)

The Madavilata flowers are mentioned in Vinaya (11-256) and *Majhima* (1-32). In the *Soundarānanda Kāvya* of Asvagośha, Nanda saw this creeper growing up a mango trees and clinging to it. (canto cii v. 8).

The Jasmines were grown round the lake of Muchalinda[20]. Five kinds of lotuses were known to the gardeners of the Buddhist period[21] (*Pancavanna Paduma Sarchanna*). Badalata a beauiful creeper of sweet taste is referred in *Dīgha Nikāya* (111.87) and *Viśuddhimaga*. As it can be gleaned, the Horticulture seemed to have been in a very high stage of efficiency in this period. The fruits and flowers culture must have been highly advanced as the growing of the flowers and fruits out of their season was also known[22].

The fact that the ancient Indians were great lovers of flowers and trees could be seen even from the account left by the Greek ambassador Megasthenese. He describes with wonder the beautiful parks encircling the palace of Chandra Gupta Maurya.

Vatsayana in his *Kāma Sūtra* gives a graphic account of the pleasure gardens attached to the residential houses and the palaces of the kings. According to him all decent houses and palaces of kings must possess pleasure gardens as adjuncts to them. "Attached to it", says he, "There must be a *Vrikṣhavātika* or *Puṣhpavātika*, or a garden with wide grounds where flowering plants and fruit trees and vegetables can grow. In the centre of the ground should be excavated a well or a tank or a lake[23]. According to the same author, the garden should be under the direct supervision of the mistress of the house. She should obtain seeds of common kitchen vegetables and medical herbs for the garden. The direction is also given as to how greens and vegetables are to be reared. Interestingly, Vatsayana enumerates the flowering plants that can find place in the gardens. The flowering plants like *Kubjaka*, *Āmalka*, *Mallikā*, *Jāti*, *Kurantaka*, *Navamallika*, *Tagara*, *Nandyāvarta*, *Japa* etc., and the *Sherbs*, *Balaka*, *Uṣira*, have been advocated by him to grow in a garden. It is also to be provided with bowers and Vine groves with exalted rostrums here and there for relaxation and recreation.

A swing too is to be fitted on a spot, overlayed with a leafy canopy shunning the sun's rays. Thus these gardens were all well contrived and kept in the charge of the trained experts, known as *Ārāmādhipaties*.

Interestinaly, the treatises on politics *Kamanḍakanīti* and *Sukranīti* expound the public parks and pleasure gardens maintained by the Government. The Horticulture played a vital role in public administration in later days. It had originated a special class of skilled artisan who constructed parks, artificial forests and pleasure gardens. These parks contemplated for health and recreation constituted an expending department of the Government. The gardens and parks thus maintained by the state were in the complete charge of the Superintendant[24]. He was to apprehend the cause of the growth and development of flowers and fruits[25]. He should be aware of the method of grafting and curing the trees by the promt administration of the proper soil and water. The gardeners who assisted him had to collect flowers and fruits after having duly nourished the plants with care[26]. The knowlege of grafting was one of the requisite qualification of the gardener and it came to be reckoned as one of the sixty four *kalas*.

Much can be known about the Horticulture from the *Kāvyas* of the celebrated poet Kālidāsa. According to him, there were two types of gardens viz., Pramadavana[27], the one attached to the house or a Royal palace[28] and another a public sort[29]. There was a specific cultivation of the flower garden and the orchard[30]. The gardens were irrigated by means of narrow drains[31] (*Kulyā*) full of running water with water fountains[32] as their source. These water wheels (*Variyantras*) incessantly threw squirts of cool water keeping the garden beds constantly flooded. The circular ditches (*ālavāla*) were sunk around the trees for storing water. The watering of the plants was done with Jars and pitchers. In *Abhigñāna Śākuṇtala*, the poet Kālidāsa describes how the daughters of the hermits were watering the plants with pitchers (*Secanaghata*). The garden was provided with a tank. The creeper like *Madhavi* and the *Priyāṇga* formed in canopies and arbours to sit on. The artificial hillocks are mock-hills[33] (*Kṛīdā Śaila*) were the common feature of the garden. Swings were fitted either in the open garden or with in a bower.

Public gardens (*nagarapavanāḥ*) were large in number and generally located outside the town. Some times, they were planted and laid out along a river side[34]. The gardeners who looked after the gardens were known as *Udyānapālikas*.

The cities of Kālidās's time were attached invariably with well laid out city public parks (*Puro Pakanthopavanam*). Continuous to the main gate[35] of the Royal palaces were constructed pleasure gardens which contained a variety of seasonal flowers, birds and tanks. The flower like *Yūtikā*, *mallikā* or *navamallikā*, *mālatī*, *syama* etc. were commonly used. Tambulavalli was also known. Among the grasses known, mention may be made of *tṛnas*, *sadvala*, *stamba*, *kandagara*, *kīcaka*, *kasa*, *uṣira* etc. The poet refers to the lotuses of various colours white, red, blue and yellow. Evidently, the Horticulture of Kālidāsa's time was of high order.

*Mānasāra* refers to *ārāma*, *udyāna* and *upavana* which stand to mean pleasure gardens, garden houses and orchards[36]. The accounts left by the Chinese pilgrims who visited India also speak about the Horticulture prevailed in their times. Fahien who visited the city of Mathura in 4th-5th centuries A.D. noticed large number of mango trees grown in orchards[37]. Yuan Chwang who was in India in the 7th century A.D. saw a monastry in a mango grove, in the vicinity of the city of Ayodhya where Asanga was taught and learnt. The same pilgrim saw lotuses in four colours in one tank[38] (*Padma*-red lotus, *Utpala*-blue, *Pundarīka*-yellow and *Kumuda*-white).

The Epigraphical evidences referring to pleasure gardens are abundant. The three Early Brāhmi inscriptions[39] at the time of Sondasa, the two pillar inscriptions[40] of Keta at Amarāvati, the Cambay plates[41] of Govinda IV, the inscription[42] of the queen Lalita Tripura sundari from Nepal, the two inscriptions[43] of Svapnesvara at Bhuvaneswar and No. 9 Dhar Prasasti[44] of Arjunavarman Parijatamanjarinataka by Madana (v. 20) speak of Udyanas and pleasure gardens. Besides, the *Upavana vinoda* a chapter in *Sāraṇgadhara Paddati* of Sāraṇgadhara, a 13th century A.D. Sanskrit work considerably deals with the subject. It discusses about the selection of the soil, sowing of seeds, the process of planting, watering of the plants, construction of garden houses and examination of soil for digging of the well etc. It is the only sanskrit work where a chapter has been alloted to the Horticulture. Speaking about the Horticulture, the Upavana vinoda asserts "He is verily the king whose abode is provided with spacious gardens containing large tanks or pools adorned with beautiful lotus blossoms over which humming bees fly, that may be regarded as the consumation of all happiness on the part of men and that give intense pleasure to the minds of sportive and pleasure seeking ladies puffed with the pride of beauty[45].

Thus the science of Horticulture with its deep seated origin in the Rigvedic time had reached such perfection in ancient India that it became so exemplary to the gardeners of the later period to copy it.

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## 6

# FESTIVALS

Festivals known to ancient India were copious and with their deep seated origin, they can be traced back as early as to the period of Vedas. The *Rigveda*[1], the *Atharvaveda*[2] and the *Vūjasaneyi Saṁhitā* of *Yajurveda*[3] accord sundry references to them. Actually, the word '*Samana*'[4] is referred to in Vedas to mean a festival. Roth in his St. Petersburg Dictionary renders this term as battle. But Pischel[5] construes it as a festival where people generally congregate to flaunt their adroitness. His interpretation seem to be more apposite as it renders all the Vedic passages lucid. The festivals of the vedic period were full of fun and frolic. On such festive occasions, archers[6] exhibited their mastery. Horse and chariot racings were conducted[7]. It was the time for the poets to earn their laurel by reciting their compositions[8]. The women, both young and elderly, sought there to find husband and courtisans making profit of the occasion.[9]

In the age of Sūtras the most favoured and popular festivals appeared to be *Mahāvrata*[10]. There were also many festive gatherings called *Samājas* or *Samavayas* where the people assembled at large. But the authors of the Sūtras had little estimate of these gatherings[11]. In fact Ā.P.D.S. (1, 1, 3.12) inhibits a student to attend *Samājas* and further inflicts this restriction on all graduates.

Pāṇiṇi[12], the renowned grammarian of the 5th century B.C. interestingly makes mention of the festivals known to his period. The contemporary Kasika on Sutras "*NITYAM-KṚĪDA-JIVA CAYOH*" (2.21) provides the names of the festivals *Uddālakapuṣpa* and *Vīraṇa-Puṣpa Pracayika*. *Uddalaka* or *Sleshmalaka* is a kind of acid fruit while *Vīraṇa* means grass, commonly known as Khas-Khas. The *Sūtra Pracam Krīdāyam* disseminates another festival *Jeevaputra Pracayikā*.

The Purāṇas also speak about the festivals of the day. The festival Sakrarca celebrated to adorn Sakra, the king of all gods and controller of the rains of all seasons is referred in the Purāṇas at several places. But it gradually waned into the observance of Indradhvaja ceremony in which the kings would erect poles in deference to the God Indra. It is *Kalki Purāṇa* that elaborately delineates this observance.[13]

Asunder these Vedic grammarian and Purāṇic gleanings of the festivals, the Buddhist and Jain literatures also furnish ample information about the festivals of their period. The *Vinayapiṭaka* gives a picturesque description of a festival '*Girasamajja*' observed on an elevated place at Rajagriha[14]. The word '*Samajja*' appears frequently in the Buddhist literature to denote a festive gathering. The *Sigalovada sutta* appraises that Samajjas held dances, music and acrobatic shows. The *Dīghanikāya*[15] also informs that people enjoyed the festivals by indulging themselves in debonair entertainments like music, dance, fairs etc. There used to be music, chanting of bards and fairy scenes by Chaṇḍālas[16]. Besides, there were also animal fights, wrestlings, ram-fights and manoeuvres.[17]

The people of the Jātaka period knew many festivals. On festivals days (*Channam Ussavo*), they had music, dance and beating of the drums.[18] The village drummers and conch-blowers called on place to place and earned their money by their art[19] The farmers took active part in the festivity[20]. People wore new clothes, gave social calls with their families and drank heavily.[21] Feats like rope-racing and javelin dancing (*laughanisippam*) were sensationally enacted by the natas[22], At times, these javelin dances resulted in the injurious ends[23]. At the time of social gathering (*Samajjas*), the parents invited their boys and girls, studying in the nearby schools and universities to partake in them.[24] Generally, the palace of the king used to be the rendezvous for all such social gatherings. Besides dramatic festivals were also instituted (*nata kani*)[25]. The Gutila Jātaka narrates a musical emulation between two eminent musicians, held in a palace court-yard.

The Jātakas refer copiously to the senile seasonal festivals called *caturmāsya.* The importance of these festivals was felt from the vedic time itself. The *Taittirīya Brāhmaṇa* adverts the need obtained by performing these observance. The *Āpasthaṁba Gṛihya Sūtra* points out to *Chaturmāsya* festivals that occurred in the interval of four months indicating the advent of three seasons spring, rain and winter. The Jātakas speak of two such Chaturmasya festivals, *Kattika* and *Kaumudī-jāgāra* or *Sarad Paurṇima.* The *Kattika* festival was celebrated on the night of the full moon day of *Kattika* (*Kartīka Paurṇima*). On this festival day, the king went round the city in solemn procession[26]. The cities and towns were garnished resplendently. It appears that when Ajātasatru was ruling Magada, the city of Rajgriha was adorned like the city of Gods[27]. The ancient cities Varanasi and Sravasthi were embellished greatly on *Kattika* festival[28]. This festival prolonged for seven days[29]. The festival *Kaumudījāgāra* was celebrated of the full moon day in the month of *Aśvina* (*Catumasini Komudi*)[30]. On this festival day, people spent sleepless night by playing dice and similar such amusements.

Many other festivals were observed on the changes of the planets and seasons (*nekkatte utūpubbesu*)[31]. Among them, the *Aṣṭaka*, Elephant drinking and ploughing and *Pavarana* festivals need mention here. The *Aṣṭaka* festivals were generally celebrated during the winter season[32]. According to *Śānkhāyana Gṛihya Sūtra*, they were celebrated on the dark moon days of the month of Margasira, Pausa and Magha. The *Mahāvagga* tells us that during the *Aṣṭaka* celebration Jatilas bathed frequently in Neranjara river. The Elephant festival was observed in the court-yard of the kings in full royal dignity[33]. The chaplain of the king who was well-versed in three Vedas should conduct this festival.

The drinking festival (*Suranakhata*) gets its mention in many Jātaka stories. In them, the drinking festivals held at Rajgriha and Benares are graphically described[34]. On festival days people ate and drank to their hearts content as they considered drinking festival as time-honoured custom[35]. Drinking booths (*maṇḍapams*) were set up on these days. On ploughing festival day, the king would inaugurate it by himself, holding the plough. The *Pavarana* festival was purely a Buddhist festival which was celebrated after the rainy season as the end of the *Vassa*, residence of the *bhikus*[36].

Besides, a festival called Śālabhañjikā has been vividly recounted in *Avadāda Sataka*[37]. Once when Buddha was dwelling in Jetavana of Ananhapindada at Sravasthi, this festival *Śālabhañjikā* was celebrated with great pomp and rapture. On this occasion, people assembled largely and played Sal blossoms. The *Nidāna katha* (Jāt. 152) also narrates the observance of this festival in Lumbini garden. Now between the two towns (*Kapilavasthu and Devadah*), there is an auspicious grove of sal tree belonging to the people of both the cities and called Lumbini grove. All that time, from the roots to the top-most branches, it was one mass of full blown flowers and amidst the branches, swarms of five coloured bees and flocks of birds of different kinds, roamed, warbling sweetly. The whole of Lumbini grove was like a wood of variegated creepers of the decorated banqueting hall of some mighty king. The queen beholding it was filled with the desire of disporting herself in the Sal grove (*Salavana kilam kilitu kamale*) and the attendants entered the wood with Queen. When she came to the root of the auspicious sal tree, she wanted to take hold of a branch of it. The branch bending down like a reed heated by a steam, approached within the reach of her hand. Stretching out her hand, she took hold of a branch and then her pains came upon her". (cf. Rhys. Davids, *Buddhist Birth Stories*, London 1880, Vol. I, PP. 66).

Apart from the Buddhist, the Jaina literature also is not wanting in references to the festivals of its age. The Jaina Sūtras refer to the festivals held in the honour of Indra Skanda, Rudra and Mukunda. Besides there were festivals of Demons, Yakṣas, and snakes observed by the Jain faith[38]. On these festival days, Brāhmaṇas, Sramaṇas and beggars were fed sumptuously[39]. There were also feasting, drinking and other amorous acts[40].

The Epic *Rāmāyana* is of the opinion that the festivity and the popular gathering increase the popularity of the state[41]. Kauṭilya even goes to the extent of recommending an organisation of *Yātra*, *Sakaja Utsava* and *Pravahaṇa* by the state.[42] Patañjali in his work *Mahābhāshya* speaks of three terms *Samasa* and *Samavaya* all denoting festive gatherings.[43]

Vātśāyana in his *Kāmasūtra* enumerates the festivals known to his period. He classifies them into five groups[44]. Firstly, he mentions festivals connected with the dieties (*Samāja*, *Yātra* and *Ghata*). The other four are, *Goṣṭhis*, *Apanakas*, *Udyānayātra* and *Samasya-Kṛīḍa*. Fahien, in his account, makes mention of a grand procession held in connection with these festivals at Khotan[45]. Vātśāyana enlists the festivals in detail as follows: *Yaṣksaratri*, *Kaumudī Jāgāra*, *Suvasntaka*, *Sahakāra-Bhañjikā*, *Abhyusa Khaḍikā*, *Bisa-Khaḍikā*, *Nava-Patrikā*, *Udakā Kṣedikā*, *Pāñchalanuyana*, *Ekasalamate*, *Yavacaturṭhi Alola-cathurṭhi*, *Madanostva*, *Dammana-bhañjikā*, *Holaka*, *Puṣpavacayika*, *chutalatika Ikṣubhañjikā Kadamba-yuddha*. The first three are categorised under *Mahimani* festivals as they are of noble purpose and universal while the rest are all provincial festivals. A brief description of the festivals enumerated is given here under[46].

*Yaskṣarātri* :

This was clebrated in the night of the new moon *Kārtika*. The modern Diwali festival is also observed in this night. *Yakṣharātri* is the last night of the year.

*Kaumudījāgāra* :

It was performed in the full moon night of Aśvina. People indulged in gambling and *Dola-kṛīḍa* on this day. This night was called *Dyutta Pūrṇima*.

*Suvasntaka* :

This was performed on the fifth day of the bright half of the month of *Māgha*. This was also called *Vassantotsava* or *Madanotsava*. Singing and dancing were the special featurrs of this festival. This festival heralds the Dule-Vasamitya of the Sitabunja cave inscription[47] We are also reminded of the *Kāmadevānuyana* of Bhāṣa's *Charudatta*

(Act-1) and of the *Madanodyāna-yātra* of Bhavabhūti's Mālatī-Mādhava (Act-1)[48]. Interestingly, *Ain-i-Akbari* also speaks about this festival[49] to a length.

*Sahakāra-Bhañjika* :

This was the festival performed duriug the spring by plucking green mangoes. Veerabhadradeva, the author of *Kandapacūḍāmaṇi* a commentary on Kāma Sūtra has described this festival as amorous festival in which crowns or ear rings of mango blossoms were worn.

*Abhyusa-khaḍikā* :

In this pastoral festival, peas, grams, maizes were burnt with the plants and picnic was held.

*Bisa-Khaḍikā* :

In this festival, young people ate the bulbous roots of the lotus from the tanks or lakes.

*Nava-Patrika* :

This festival was celebrated in the forest-region by the people residing in the adjoining villages at the time when the trees brought forth new leaves after the rainy season. Virabhadra explains as a kind of play in which the trees are married to the creepers.

*Udaka-kṣeḍikā* :

In this festival people used to sprinkle coloured waters on each other by means of syringes made of bamboos. Yaśodhara calls this observance as Sruṇga-kṛīḍa. This festival has later on merged into Holak or the modern Holi festival.

*Pañchalanuyana* :

This has been explained by Yaśodhara as imitating the voice or cry of all animals and birds.

*Ekasalamate* :

During the spring when *Salamali* (silk cotton) trees are covered with flowers young people adorn themselves with ornaments made of these flowers and some of them climb on a big trees and others surround it singing and dancing.

*Yava-Caṭurṭhi* :

This was celebrated on the fourth night of the bright fortnight of Vaisāka. In this festival people threw at each others fragrant barely powder as in the case of *Holaka* or *Holi* festival.

*Alola-Chathurṭhi* :

It was the festival of swinging performed during the fourth day of the bright part of Srāvaṇa. It was also called *Anḍolacaturṭhi.*

*Madanostva* :

On the bright fourteenth day of Chaitra an image of God Madan (Indian Cupid) was worshipped and it was celebrated with singing and dancing by the young folk.

*Dammana-bhañjikā* ;

On the twelfth day of the bright fortnight of Chaitra young people gathered Dona flowers and adorned themselves with the ornaments made of these flowers.

*Holaka* :

This is equivalent to the modern Holi festival. This was celebrated on the full-moon day at Phalguṇa. In this festival in early days people used to throw at each other coloured powders or fragrant waters by means of small pots of lac.

*Aśokoṭṭaṁsika* :

This was celebrated during the brighth eight day of the Chaitra. In this festival young people used to wear crowns made of Aśoka flowers. This has now turned into ritualistic observance called *Aśokatami* when the women usually eat the Asoka flowers.

*Puṣpavacayika* :

It was the play of picking or collecting flowers. In many kāvyas[50] we get description of this dalliance.

### *Chutalatika* :

In this festival people adorned themselves with mango blossoms.

### *Ikṣu-bhañjikā* :

When the sugar canes become ripe for harvest young boys assembled together and held picnics near the fields, broke and chewed the canes with great mirth.

### *Kadamba-yuddha* :

During the rainy season when the Kadamba flowers blossomed young boys and girls assembled together under a Kadamba tree and divided themselves into two parties and fought with each other using these flowers as missiles.

### *Asṭami chandrika* :

This was celebrated on the eight day of the black fortnignt of *Agrahayana.*[51] People worshipped the moon at mid-night after fasting for the whole day.

Interestingly, the *Sarasvatī Kaṇṭhābharaṇa* (5, 93) adds three more festivals viz., *Kundacaturṭhi*, *Bhutamātrika* and *Sakrarca*. *Kuṇḍacathurṭhi* was performed on the fourth day of the bright half of Māgh. This was performed a day prior to *Suvassantaka* festival.[52]

Kāvyas of Kālidāsa frequently refer to the festivals more of Religious nature. The festivals like *Puruhuta*, *Kakabali*, *Rtusısva* get their mention at several places in his kāvyas. The Purubuta[53] was per formed in honour of Indra on the first sight of the rainbow. It lasted for the five days from the eighth of the bright half of Bhādrapada to the twelfth. *Kakabali*[54] was performed for the safety of husband living in the alien land. *Rtustsva* was celebrated in the honour of *Rāmadeva* who was adorned with mango blossoms.[55] The sweets were distributed to the people on this occasion.[56] The people enjoyed by throwing at each other coloured water with syringes and water pipes as portrayed in *Ratnāvali*. *Rtustsva* or *vassantostsva* was celebrated by inaugurating the performance of a drama. *Mālavikāgnimitra* was one such first stage on the occasion.[57]

Festivals were enjoyed by the people with great mirth and joy. They decorated their houses and the city with thoranas or festoons, flags and paintings.[58] Thus the festivals of ancient India, pervading through ages enlivened the social life of the people so much that it became almost integral part of their life and interspersed with the hilarious activities arising out of it.

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# 7

# DICE PLAY

The origin of the well-known dice play, like many other ancient Indian games is muffled into the hazy mist of antiquity. Earliest archaeological evidence of it we find in the excavations of Mohenjo-daro and Harappa wherein have been unearthed number of clay and ivory dice pieces of which the former ones were all well-baked and even painted. Reference to dice game are in abundance in early literature. Both the Rigveda[1] and the Atharvaveda[2] speak of the prevalence of dice made out of *vibhīdaka* (*terminalia bellerica*) nuts and its play at several places. It formed part of the ritualistic ceremonies like *Rājasūya.* In such ritual games, no specification about the material of the dice is made, but instances of the usage of the gold imitations of vibhidaka nuts are in evidence.[3] But no where vedic literature refers to the use of cowries as dice.[4]

Vedic literature accords only scanty account of the method of playing dice in the Vedic spell. The Rigvada[5] deleniates the dicer as "Leader of a great horde" (*Senanirmahato gaṇasya*) and gives the number of dice used in the gambling as tripancasah, while the *Taittirīya Brāhmaṇa* (1-7-10) clearly points out to a passage where a reference is made to the play with five dice. But modern scholars like Mrs. Ludwig, Weber and Zimmer on the contrary, opine that many dice would have been used in the gambling and this surmise in all probability may not hold good.

However, Vedic literature does not speak of the use of the dice-board. But in vedic time dice were thrown on the depression (*adni-devana*[6]) or (*Iriṇa*[7]) made in the ground. No dice box was used but reference is made to a case for keeping dice in *akṣa-vapana.*[8]

The throw was known as *Graha* or *Grabha*. The stake was called *Vij*. The four sides of the *akṣa* or dice had varied names : the side marked with one points was *kali*, that with two points *dvāpara*, that with three points *trēta* and that with four points was called *krta*. In some games *trēta* and in others *kali*, was counted as the highest throw. However. the nature of the throws still gropes in obscurity. The St. Petersburg Dictionary postulates that the names given above were meant to indicate either dice marked 4, 3, 2 and 1 or the sides of the dice so marked. Commentators like Nīlakaṇṭha,[9] have supported the later interpretation. In the *Mahābhārata* we get terms like *dyuta* and *durodara*. There is a *Sūtra* in Pāṇini's Grammar "*akṣa Śalaka sāmkhya parina*". Evidently thereby in Pāṇinis time (6th Cent. B.C.) *Śalaka* was used in gambling. In the commentary on the Nārada Smṛti (6.1) the meaning of *Salaka* is given as a four-sides bar made of ivory. The *Daśa Kumāra Charita* refers to the various kind of gamblings.

Apart from the Vedic and the Purāṇic evidences, Jātakas also make mention of gambling with dice (1.151, 221; 111, 61, 131, Vi.171; 133, 137) the names of throws of dice (VI 137) and of magic dice (II. 175). Buddhist literature[10] enumerates the games like *Aṭṭhapada* and *Daśapada*. *Aṭṭhapada* was a kind of gambling. It is now known as *Chaturaṇga*-Indian chess. Buddhagosha has explained this term in his commentary on *Dīghanikāya-Sumaṇgala Vilāsini* as a game played on boards with eight rows having eight squares for each row. It may mean any other game like draught from which the modern game of chess has developed. We get clear mention of it in the *Hara Vijaya Mahākāvya* of *Rājanaka Rattakara* who flourished in 9th Cent. A. D. *Daśapada* was a game similar to *Aṭṭhapada* and it was played with a board of eleven lines having ten squares in each row.

Interestingly, a bas-relief on the Bharhūt rails portrays a scene where two men are sitting face to face. There is a board in front of them which has six times five squares and six little cubes with marks on the sides lying outside the board.[11]

Apart from these literary and iconographic gleanings, excavations at many historic place have brought to light numbr of dice and game boards revealing thereby the popularity of such dice play in historic period. Excavations at Taxila[12] have yielded a number of dice datable to Greek and Śaka Parthian periods. They are mostly of ivory, bone, slate and terracotta and invariably oblong in shape. The dice are indicated with numbers 4, 3, 2 and 1 on all four sides by way of concentric circles of simple dots. But no chess board is reported to have been discovered at Taxila.

Excavations at Kumarahar[13] have disclosed to view dice of terracotta and ivory from period IV (300 A.D. to 450 A.D.). Recent excavations at Nāgārjunakoṇḍa, a famous Buddhist site in Āndhra Pradesh, have thrown a lurid light on the dice play. Besides sundry ivory dice with points incised on them in accordance with those known in Vedic India, traces of game boards on some of the basement slabs and ghat steps are delineated from both religious and secular buildings of Nāgārjunakonda. About twenty dice made out of ivory are evidenced at Ikshvāku levels. Majority of them bear concentric circles while the others are marked out with a simple dot within a circle. The average length of the dice recovered is 6 cms. The disclosure of such dice and game boards from the excavations bespeaks the social life of the people of the day. Among the buildings of Nāgārjunakoṇḍa that bear the traces of game boards, bathing ghat, burning ghat area and a Mandapa connected to fourspoked stupa need mention here.

*Game Board on a bathing ghat step* (*Fig. VII, 4*)

To the west of Pushpabhadrasvāmi Temple and on the river bank of Kṛishṇa is located the bathing ghat. This elaborate ghat measuring 100‘ x 330’ is provided with flights of balustraded steps and terraces. The core of the structure is built of brick in lime and is securely lined with Cuddapah slabs perhaps for preserving it from the on-rush of waters. The slabs besides bearing inscriptions and masons, marks contain a line drawing of game board. As the diagram, shows the game board consists of eight rows having eight squares in each row. Evidently this is meant for playing '*Aṭṭapada*' a game which was referred to as very popular by Buddhagośha in his commentary. This game was favoured by Ikshvāku rulers as well (A.D. 225-310).

### *Game boards from burning ghat area (Fig. VII, 1, 2 & 3)*

On the northern slope of the Nāgārjunakoṇḍa hill and overlooking the river Kṛishṇa are situated structures pertaining to the burning ghat of Ikshvākus. In the same area, a forty-eight-pillared hall also was disclosed to view. On some of the flooring slabs of this Mandapa are incised figures of game boards in rows of two, three and five consisting of same number of squares in each respective row. The mode of play with this kind of game board may resemble the modern game "Patchis".

Besides, another game board which is fragmentary is seen on the Maṇḍapa flooring slab near four-spoked stupa. From the extant portion of the board, it can be taken as one generally used for *Aṭṭapada* play.

These games were not uncommon in ancient India. Numerous instances are there to cite of games like chess, dice etc. played in the club houses. The Vedic and Smṛti literature vividly points out that gambling houses were managed by the state. The Arthaśāstra[14] advocates the strict control of gambling. Buddhist, Jain and Brahmanical literatures speak of the existence of gambling houses at several places. There is not much disparity between the games played in ancient and modern times. The modern games[15] like "*Zanabetha*", "*Pulijūdam*", "*Aṭṭachamma*" and "*Patchis*" (*Fig. VII 1,3,2,4*) reveal their close affinity to many of the ancient games. The games *Aṭṭachamma* and *Patchis* have closer affinity to the ancient Indian games of *Aṭṭapada* or *Daśapada* dice play. In all probability, these modern games are only derivatives of those ancient games and have come down to us. At Nāgārjunakoṇḍa, the evidence supplied from the excavations confirms the continuance of the ancient tradition of the chess play in India as a popular game. This incidentally helps us in constructing the social history of the Ikshvaku people in the matter of amusements.

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# 8

## AŚVAMEDHA RITUAL

The origin of the Aśvamedha ritual is muffled like many other senile institutions of India in the opalescent mists of antiquity. The earliest mention of it we get in the *Rigveda*[1] wherein the entire ritual has been vividly delineated. The *Śathapatha Brahmaṇa*[2] and the *Taittrīya Brahmaṇa*[3] also graphically recounts the *Aśvamedha* sacrifice The *Taittrīya Brāhmaṇa* even identifies the *Aśvamedha* with "the king. dom"[4] and adds that "he who being weak offers an *Aśvamedha* is indeed thrown away", If the enemies were to secure the horse, the sacrifice would be destroyed. Thus a deep mystic significance came to be attached to the horse sacrifice in the speculation of the *Brāhmaṇas*.

Later the *Śrauta Sūtras* of *Kātyāyana*, *Āpastamb Āśvalāyana* and *Sānkyāyana* also speak about the sacrifice, mainly concerning with the religious side of the ceremonial. According to the *Āśvalāyana*[5] the *Aśvamedha* is deemed as on shina of three pressing days. A paramount sovereign (*Sārvabhauma*) or a crowned king who is not a *Sārvabhauma* may perform the sacrifice. The *Āśvalāyana* adds that one who desires to secure all objects to win all victories and to attain all prosperities may perform this sacrifice.

In ancient times the horse-sacrifice was performed by the kings who were desirous of off-springs[6] or purifying themselves from the sins. Interestingly, in the *Ramayana* and the *Mahabharata*, the exemplifications of the performance of the *Aśvamedha* sacrifice is described with epic diffuseness. The *Bālakāṇḍā* of *Rāmāyaṇa*[7] contains a graphic description of the *Aśvamedha* performed by *Daśaratha* for securing sons, expressly—points out to the *Kalpasūtra* (*try a hoss*' *vamedha samkhyatah kalpasūtreṇa Brāhmaṇaih*). The *Aśvamedha Parva* of the *Mahābhārata* makes it look an expiatory ceremony (*Prāyascitta* for cleansing Yadhṣtira and his brothers of all sins incurred by them in man slaughter[8] in the *Mahābhāratha* war.

> "AŚVAMEDHO HI RAJENDRA PĀVANAH SARVAPĀPMĀNAṀ TENESTVĀ TVAM VIPAPMA VAIBHAVITA NAT RASAMSAYAH JNĀTIVADHYĀKRTAṀ PĀPA PRAHĀSYASI NARĀDHIPA PAVITRAṀ PARANAM CAITAT PĀVANĀNAMCA PĀVANAṀ YADASVAMEDHAVABHRTHAM PRAPSYASE KURUNANDANA.

This cleansing of sins is what the *Brāhmaṇas* also advert to as "*tarati tarati Brahmhatyam yoaśvamedhena yajate*"[9]

The *Aśvamedha* was thus Royal sacrifice par excellence. A, B, Keith[10] has rightly defined *Aśvamedha* as an old and famous rite which kings alone can bring to increase their realms. The privilege of performing the horse sacrifice appears to have been the right of a ruler whose sovereignity was unquestioned. It was designed to secure for him continued success fulfilment of all his desires, increase of strength and the extension of empire[11].

Generally the *Aśvamedha* sacrifice would be performed either before *Digvijaya* or after the compaign. In fact, the *Aitreya Brāhmaṇa*[12] enumerates the list of the ancient kings who performed the *Aśvamedha* sacrifices after fitting out victorious expedition. Apparently, the *Aśvamedha* ritual, became more a great state function with which were associated secular customs accompanied by oritorical displays. Unlike the other sacrifices which are mostly priestly, the *Aśvamedha* distinguishes itself by its more secular character and natural colouring. Professor Maxmuller[13] speaking about the importance of the *Aśvamedha* sacrifice adds "the performance of the horse-sacrifice must have had connected with it a certain amount of ceremonial of purely secular and popular character. Even at the time of the fully developed ritual this was almost certainly the case to a larger extent than would appear from the exposition of it given in the *Brāhmaṇas* and the *Sūtras* which indeed are mainly concerned with the religious side of the ceremonial."

Generally the *Aśvamedha* sacrifice begins on the 8th or 9th of the bright half of Phalguṇa or on the same days of Jyeshṭa or Aṣhāda. The *Āpastamba*[14] holds that it should begun on the full moon of Chaitra. A careful attention has been paid in the selection of the sacrificial horse, as rules[15] are laid down about the colour and qualities of the horse. The animal selected should be of pure breed, valuable and distinguished by special marks. It must be all white with dark circular spots and of great speed. It can have a tuft of dark blue hair. It is is identified with *Āditya*, *Trita* and *Yama*[16] The four principal priests standing in four directions sprinkle the horse with holy water. A dog with four eyes (i.e. having two natural eyes and two depressions in the skins above the eyes) is killed by a man of the *ayogava* caste or by a voluptuary with the pestle of *sidhraka*[17] wood and tethered to the leg of the horse before it is set out for the victorious march.

The horse thus let off, roams over the country for one year. During its ramblings it will be escorted by four hundred guards[17] including a hundred royal princes, a hundred noblemen, a hundred sons of officials of higher rank and a hundred of lower rank all armed in accordance with their status. These guards during their period of convoying the sacrificial horse, should live on the food demanded from the brahmanas who do not know the procedure of *Aśvamedha* or on cooked food taken from all brāhmaṇas. They should guard the horse against its danger or theft without impairing its freedom of movement. If the horse is captured and the force that was following the horse fail to conquer the man who retarded its progress, the very intent and the purport of the sacrifice is rendered futile. On the return of the sacrificial horse after its victorious march, the *Yajamāna* completes the *Aśvamedha* sacrifice by following the latter ritualistic customs.

In the meanwhile, everyday, celestial fire (*Āhvanīya*) is created in the chiti area and offerings are made. The *chitis* or the alters for the soma sacrifices have been enumerated in the *Taittirīya Saṁhitā Baudhāyana and Āpastaṁbha* according to their shapes.[18] Generally, the *chitis* in the rituals consist of five layers of brick standing to a height of a knee. In order to increase the height of a chiti 10 to 12 layers of brick are also used proportionately[19]. Three istis are offerred to *Savitr*. Daily at the festive congregations before the king and the court the hotr has to give a recital. Every eleven days this cycle of recitation will be repeated. The recitāl concludes with an appropriate chapter from the vedas together with singing lute playing and impromptu verses composed by a noble bard in honour of the king, who performed the sacrifice, comparing him with the pious rulers of the ancient times. The Balad singers invariably comprise of old and young people besides snake-charmers, fishermen or sages. The recital itself was enlivined by dramatic action. As the king is engaged in the sacrifice and listening to pariplayas, the adhvaryu becomes the king till the *Aśvamedha* is performed. The sacrificer or the crowned King declares 'Oh! Brahmanas and nobles? this a dhvaryu is your king, whatever honour you want to pay, yon should pay to him'[2]. Thus for a year the sacrificer keeps observances as in the *Raja Sūya*.[20] Large fees were given to the *hotr* and *Adhvāryu*[21] and to Singers.[22] When the horse had returned after its ramblings of one year, the latter ceremonies of the sacrifice begins with the consicretion (*Dīkṣha*) of the King. Several expiatory ceremonies are prescribed in case when the horse died or suffered from disease.[23]

The ceremony proper lasts for three days accompanied by numerous other animal sacrifices and by the pressing of the *Soma*. On the second day, the sacrificial horse decked with gold is yoked to a guilded charriot with three other horses and is driven round and then bathed.[24] On its return it is annointed by the three chief wives of the King and is decorated while the hotr and the Brāhman of the sacrifice performs a *Brahmodhya*—a theosophical enigna play. The horse is then tethered to the sacrificial post *Yūpa* along with the he—goat. Then it is smeared with ghee, oil etc. and is killed. When it is killed, the wives of the Kings go round thrice from left to right with mantrams chanting "*gaṇānāṁtva*" and again thrice from right to left uttering "*priyānāṁtva*" and again thrice from left uttering "*nidhīnāṁ tva*" (all in *Vāj S.* XXIII.19). Thereafter it is made to lie on a mantle. The chief queen then performs *Vpasamvesana*'.[25] The Mahiṣhī of the performer of the sacrifice has to unite with the dead horse and after this scene, the *vapa* is offered to the *Prajāpati.* The horse's flesh will be cooked in a pot called '*Ukha*'[26] and later on will be distributed. On the third day the performer or the *puruṣhakāra* will have a purificatory bath in the *Avabṛitha* tank built specially for this purpose and gets himself sanctified. Later all the visitors to the yaga will have a bath for cleaning themselves. The sacrificer then distributes liberally the booty which he has captured in the conquered land during the horse's ramblings, as gifts to all the brāhmaṇas who have congregated on the occasion.

According to Prof. Olden Berg, the *Aśvamedha* sacrifice is an offering to Indra, the warrior God, to enable the *yajamāna* to derive thereby occult powers and establish his *Sārvabhaumatva.* A King who performs hundred *Aśvamedhas* will acquire the throne of Indra. The killing of the dog which is enjoined in the ritual is intended as the destruction of hostile powers. The union of the dead horse and the queen (*Upasaṁvesana*) is clearly a "fertility spell". But in the words of Khane "in it (*Aśvamedha* sacrifice) several popular, religious and symbolical elements are inextricably blended and some rites like the queen lying down near the dead horse must be regarded as unaccountable survival from the hoary past".[27]

The sacrifice appears to be a rare rite in ancient times. Both the *Taitt……S.* V. 4. 123 and *Śat.Br.* XIII, 3,6 refer the *Aśvamedha* sacrifice as one which was *utsanna* gone out of vogue. The *Atharvaveda* actually brands *Rājasūya, Vājapeya, Aśvamedha* and several other sacrifices as *Ustanna.*

But this sacrifice was very much developed in the historical period. The Magadha emperor Puṣhyamitra Suṇga performed two *Aśvamedha* sacrifices.[28] The *Purāṇas* are full of instances of the per. formers of the *Aśvamedha* sacrifices. According to the *Matsya Puraṇa*, Sūdra kings in kali age also credited to have performed the *Aśvemedha* sacrifice. The *Bhāgvata* actually branded the founder of the Sātavāhana dynasty and the performer of *Aśvamedha* sacrifice, a *vṛiṣhala.*

Both epigraphical[29] and numismatical[30] evidences throw a lucid light on this *Aśvamedha* sacrifice. Vāsisṭiputra Ikshvāku Sāmtamūla (220-243 A.D) is said to have performed Hindu rights such as *Agnihotra*, *Agnisṭoma*, *Vajapeya* and Aśvamedha sacrifices from the epigraphical sources. Interestingly, it appears that during the recent excavations, a site, where an *Aśvamedha* sacrifice has been performed has been located at Nāgārjuṇakonḍa in Āndhra Pradesh. (*Plate I* and *II*) In 4th Cent. A.D. the Sālankāyana king Devavarman called him *Aśvamedhayāji*[31] by performing the horse-sacrifice. The Vākātaka king Pravarasena-I performed *Aśvamedha* sacrifice, besides *Agnisṭoma*, *Aptoryama*, *Uktya*, *Sodasi*, *Atirata*, *Brahaspatisvā* and *Sadyaskra*.[32] Mādhavavarman Janasraya, a Vishṇukuṇdin king appears to have performed 11 *Aśvamedhas*, 1000 *Agnisṭomas*, and some other rights including *Hiraṇyagarbha*[33] In Hirshadgalli grant the earliest known Pallava king Śiva-skandavarman of 4th Century A.D. is pointed out to have performed the horse-sacrifice. Morever, Śivaskandavarman-II of Omgodu grant called himself *Aśvamodhayāji* the performer of the horse sacrifice. Later, the kings of kadamba dynasty also followed the tradition. On a Mayūra-sarman, a Kadamba king, is known from the inscriptions,[34] to have performed the *Aśvamedha* ritual. In 6th Century A.D. another Kadamba king Boghivarman of Tagare plates[35] is said to have performed the horse-sacrifice. The Chālukyan emperor Pulakeśi got himself sanctified by the bath at the *Aśvamedha*.[36]

The famous Poet Bhavabhuti,[37] who lived in 8th Century A.D. also refer to the *Aśvamedha* sacrifice. In 11th Century A.D. also Alburuni,[38] while speaking about the *Aśvamedha* sacrifice says "certain of them (sacrifices) can only be performed by the greatest of their kings so, *Aśvamedha*". As late as 18th century A.D. we get a reference to the performance of the *Aśvamedha*. The king Jaisingh of Amber is said to have performed the horse-sacrifice.[39]

Thus, the *Aśvamedha* ritual with its hoary past remains to be of an untold importance to the students of vedic, epic and *śrauta* literature.

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18. (i) Syene chit (square in shape); (ii) Kaṇkachit (in the form of heron) (iii) Praugachit (in the shape of quadrilatoral triangle), (iv) Rathachakrachit (in the form of a wheel), (v) Droṇa-chit (in the form of a vessel or tube which is square or circular). (vi) the Parichayya chit (circular in outline and is equal to Rathachakrachit but differing in the arrangements of the bricks). (vii) Samuhya chit (circular in shape and made out of loose earth and bricks), and (viii) Kūrma chit (in a tortoise shape),—Compare Burnell, Catalogue 29 of a Carion kite and Thibant, *Journal of A.S. Bengal*, 1875, Part I.
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## 9

## SATI SACRIFICE

The efficācious practice of Satī-the concremation of widow on the funeral pyre of the deceased husband seems to be a later accretion, as late as to the period of the *Vishṇu Dharma Sūtra* (100-300 A.D.) as we get only scanty references to the ritualistic survival of the custom in the earlier period. It is believed that this prāctice was prevalent among ancient Greeks, Germans, Slavs and other races and influenced India considerably, confining mainly to nobles and princesses in the initial stages.[1] But it appears in Vedic India that the Satī sacrifice was discouraged and no Vedic passage indubitably referred to the burning of the widow alive as then current. Kaegi the commentator on the Rigveda writes "the well known custom of burning of widows for thousand of years, demanded by the Brāhmaṇas is no where evidenced in the Rigveda; only by a palpable falsification of hymn has the existence of the custom forcibly put into the text, which on the contrary prove directly the opposite (i.e.) the return of the widow from the husband's corpse into a happy life and her remarriage".[2] The *Atharvaveda*[3] only calls it "the ancient custom". At the time of the *Araṇyaka*, this rite had not obtained currency in the country.[4]

The *Sūtras* that follow the *Brāhmaṇas* give sparse references to Sati. According to the *Baudhāyana* the wife should be on the funeral pyre on the left side of the corpse where as the *Aśvalāyana* recommends that she should be placed near the head of the corpse on the north side.[5]

The *Manusmṛiti* is entirely silent about it. Of the *Dharma Sūtras* only Vishṇu bears direct references to Satī. According to it, a wife should observe either celebacy or should ascend the funeral pyre after him.[6] Interestingly, the *vedavyāsa Smṛuti* advocates that a Brāhman's wife should enter fire clasping the dead body of her husband. If she lives āfter her husband's death she should lead an austentatious life emaciating her body.

The exemplification of the Satī practice from the *Rāmāyaṇa* and the *Mahābhāraṭa* can be gleāned with epic diffuseness. The *Uttara Kāṇḍā*[7] of *Rāmāyaṇa* describes a Brāhmaṇa woman who committed Satī when molested by Ravaṇa. In the *Mahābhārata*,[8] Mādrī wife of Pāṇdu is shown as performing Satī. In the *Virāta Parva* (125. 129) Sairandhrī is ordered to be burnt with Kīcaka. (The *Sānti Parva* describes how a Kapoti entered fire on the death of her husband, the bird. The *Vishṇu Purāṇa* (V 38. 2) incidentally mentions that the eight queens of Kṛishṇa entered fire on his death. The Jain literature does not speak about Satī. The Buddhist probably deterred it.[9])

The *Śuddhitattava* vividly delineates the procedure of the widow burning.[10] The woman who has resolved to commit Satī has to bathe and then wear white raiments. Then she turns towards North or South and performs *Āchamana* holding Kusā blades in her hands. Later she does *Sani Kalpa* on the utterance of the Brāhman "*Om tat sat*." She invites by prayer the *Ashta Dikpālas* to be the witness for her act of committing Satī. After that she goes round the funeral pyre and ascends it while the Brāhmana is chanting Mantras from the Vedic and the Puraṇic lores.

The rewards enumerated for Satī are copious and lucrative. A woman who follows her husband after his death dwels in heaven for as many years as there are hair on the human body. The woman who has committed Satī will acquire such power by which she can even redeem the sin of her husband even if he is guilty of murdering ā Brāhman. If a woman does not enter fire after her husband's death she will not be freed from woman's birth in her successive births. Harita observes that a woman practicing self immolation ennobles three lives (i.e.) those of her father, her mother and her husband.

Some of the commentators vehemently remonstrated this deleterious practice of Sati. The *Madana Pārijāta* advocates that the text about sanctifying a husband guilty of Brāhmaṇa murder is only hyperbolical eulogy of *anvārohaṇa*. Besides the *smṛithies* inextricably enjoins the restrictions on the widows. The widows who have not attained puberty, who hāve infant baby and who are pregnant are forbidden from entering the funeral pyre of their deceased husbands. The *Āpastaṁba* prescribes the prajapatya penance for ā woman who having first resolved to burn herself on the funeral pyre turns back from it at the last moment.[11] (*Rājatarangani* (vi 196) quotes an instance where a queen who declared to commit Sati retreats at the last moment.)

Distinctly different from *Sahagāmana* or *Sahamaraṇa* is *Anumaraṇa*. This occurs after the cremation of the husband's body. On hearning the death of her husband in a remote place she enters fire with or without any ashes of belonging of his. (The *Kāma Sūtra* (vi. 3 53) speaks of *Anumaraṇa* profusely. The *Harṣa Carita* recounts how yaśhomati consort of Prabhākaravardhana consigned herself to fire when the king was dying. Bāṇa in his *Kādambarī* (7th century A.D.) totally condemns *Anumaraṇa*. But the *Bhāgavata Purāṇa*[12] speaks of Gandhārī's Satiī on the death of her husband Dṛtarāsṭra.

The Epigraphical evidences in support of Satī are numerous and throw lurid light on the Satī Practices. The earliest inscriptional record of Satī we get in 191A.D. of the Gupta Era.[13] The Belaturu Inscription[14] of Rajendra Chola dated Śaka 799 A.D. speaks of one Sūpra women, Dekabbe committing Satī on the death of her husband. A grant[15] is made in Śaka 1103 A.D. by Mahāmaṇḍaleśvara Rāchamalla in connection with two Satis. Thus to start with this inhuman rite of Satī was confined to kings and nobles as on the death of their husbands, queens and princesses preferred eṇtering fire than to be the captives of the conquerors who very often wreaked vengeance on these poor captives. In fact Manu allows (vii. 96) the soldier to retain a woman conquered by him along with other booty.

Satram memorial stones are found at large through out India. Generally, they are depicted with human figures, at times with an upraised arm and hand. In some cases the human figure is shown being flanked by moon and sun on either side. Their delineation in a

Satī Stone is symbolical and means that they are the perpetual witnesses to the Satī offering. In certain cases human figure holds a lime fruit between the thumb and the fore finger. Curiously in some of the cases the figure of a snake is also depicted. A Satī memorial pillar at Batod[16] in the central province stood for three successive Satis.

At Nāgārjunakoṇḍa in Āndhra Pradesh as a result of the recent excavations[17] has been discerned the vestige of the prevalence of the Satī practice among Ikshavākus an independant dynasty which rose to prominence in the wake of the decline of imperial Sātayāhana rule. A lime stone sculpture where a lady is meticulously portrayed as committing Sati is encountered at the Burning Ghat of the Ikshavāku period (2nd-3rd Cent. A.D)* This sculpture exemplified here in the line-drawing[18] (Fig. VIII and Plate III) measures 1′ 10″ in length and 91/29 in breadth.

The Lady depicted in shown getting down from the ladder into the fire provided on four sides. She is having her right leg firmly planted on the floor while the left leg is bent and resting on the first rung of the ladder from the beneath. Her right hand is resting on her thigh while the left hand is kept on the third rung of the ladder. She is devoid of any ornaments and the whole posture is seen as though she is in the act of stepping into the fire, committing Satī. The fore agnis shown on four cardinal points stand symbolically for the funeral pyre. The entire picture is simple and is in the realistic mode of lithography. The usual moon and star that will be met within the Satī Stone as evidenced in later Satī stones are absent here. The Satī stone does not bear any inscription but its recovery from the Burning ghat (*Plate IV*) of the Ikshavāku is quite compatible and significant. This Archaeological corroboration throws lucid light on the Satī practice during 2nd-3rd century A.D., incidentally thereby revealing the religious activities of the Ikshvāku people.

Such memorial stones of Satī were not uncommon and can be traced through the ages[19]. One Satī stone at Eran is dated in 510-511 A.D. The one discovered at Baro[20] in Malva District is dated 10th century A.D. At Hindona[21] in Damob district of the Central

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*She could have also been a *tapasvinī*

province has been recovered a Satī stone datable to 1056 A.D. Another dated 1298 A.D. comes from the Jabalpur district.[22] At a place called Khimalasa an old town 41 miles from Saugar Sir Alexander Cunningham observed innumerable Satī stones ranging in date from 1453 A.D.[23]. The evidences of Satī during Vijayanagar period are in plenty[24]. The fifteenth century traveller Nicole Conti, states that as many as three thousand of the wives and concubines of the king of Vijayanagar were pledged to be burnt with their lord on his death. The portuguise traveller Nuniz leaves a grafic account of Satī practicsed in Vijayanagar period. However as late as in 1795 A.D. Mr. Colbrooke, makes the statement that "happily a martyrs of this superstition are not numerous and it is certain that the instances of the widow sacrifices are rare".[25] Later in 1829 A.D. Lord William Bentinck abolished this Sati practice declaring it as illegal and crime[26]. Thus the practice of Satī with its deep seated origin in ancient times pervaded through centuries till it was declared illegal in 1829.

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# 10

# SURGERY

Surgery in India has a hoary past and perhaps finds its incipience in the Vedic period itself. The earliest mention of it[1] we find in the RK Samhita wherein it is stated that Asvins were adepts in the surgical art and that they mended the leg of Vispala when it was cut off in a battle, by supplanting it with an iron one. Later, the Jain and the Buddhist works also make sundry references to surgery as practised in their times.

According to the Jain texts Dhanvatari[2] was an expert in the science of medicine (*Tegicchaya* or *Āyuvveya*). He mastered the eight branches of the medical science namely, *Kumārabhicca* (pediatrics), *Salāga* (surgery and mid-wifery), *Sallahattha* (the treatment of bodily of eye, ear, nose and throat), *Kāyatigiccha* (the treatment of bodily diseases), *Jaṅgola* (toxicology), *Bhūya-vijjā* (demonology), *Rasāyana* (the science and art of restoring health in old age) and *Vājikaraṇa* or *Khāratanta* (sexual rejuvenation).[3] The surgeons of the period were so efficient that they even undertook the task of opening the veins (*Sirāveha*). They knew cutting (*Tacchaṇa*), scraping (*Pacchaṇa*),[4] etc. Interestingly the *Nisīta Cūrṇi*,[5] enumerates the prevalent surgical instruments. They included *Aṅgulisatthaya*, *Sirāvehasatthaya*, *Pacchaṇa Kappaṇa*, *Lohakaṇṭiyā*, *Saṇḍāsa*, *Anuvehasalāgā*, *Vīimuha* and *Sūimuha*.

In those days the ethics of medical code was very rigid and physicians and surgeons who were negligent of their jobs were subjected to severe disciplinary action. It would appear that a physician who did not treat a Queen properly was put to death[6]. In another case a doctor who was a gambler remained indifferent to his work and his book of medicine was stolen and his surgical instruments got rusted; when this fact was brought to the notice of the King he stopped the payment of the doctor's salary[7] with immediate effect.

Frequent references to hospitals (*Tigiccha-sālā*) are found in Jain literature. The *Nāyādhammakaha*[8] informs us that the hospitals were generally built on hundred pillars and were highly capacious and airy. There were many physicians and surgeons attending upon the patients. They cured the sores by proper bandaging and stitching. In the battle-fields the doctors carried well-equipped medical kitbags which invariably consisted of surgical instruments of high order.[9] The surgical operations were attended to with great skill. But still there were failures at times. On one occasion when a fish-bone (*Maccha-kantaka*) stuck into the throat of a fisherman, the surgeons were called upon for medical help. Though they tried to remove the bone with the instrument (*Salla*) and made use of other means as well they could not succeed.[10]

Besides, the Buddhist literature also profusely speaks of surgery and surgical operations. The knowledge of the general constitution of the body is of course essential before any surgical operation undertaken; and the *Dīgha Nikāa*[11] furnishes the required information. The mode of dissection of the body is discussed distinctly in *Samyutta*. While dissecting the body the surgeons cut the skin (*Chavi*), under-skin (*Camma*), flesh (*Mamsa*), tendons (*Naharu*) and then bones *Aṭṭhi* and marrow (*Aṭṭhiminjam*).

The surgeons (*Sallakatta*) could even extract foreign matter especially arrow-head, from the body. Presumably, in those days of arrow-fighting, the surgeons derived their name from the word *salla*.[12] After cutting through the external wound and probing the barb, they extracted it and then dressed the external wound with medical embers[13] The surgical instrument, lancet, *Lona-akkharika* was used for cutting the wounds.[14] Salves and compresses (*Kahalika*) were applied to wounds and fine bandages used for tying them up.[15]

That surgery was fairly developed and in a high state of efficiency in Buddhist period is evident from the stories of *Jīvaka*, recounted in *Vinayavastu* of the *Mūlasarvastivāda.*[16] *Jīvaka Komarabhacca* was the master surgeon and physician in the court of Bimbisara. He learnt surgery under the reputed teacher, Atreya for seven years.[17] His mastery in surgery was superb. He used to undertake even the most arduous operation of the intestines which, in the modern surgical terminology, would be called intussusception. On the occasion he was called upon to perform an operation on the son of a well-known merchant who was suffering from the disease called *Antagantha badha* as a result of turning somersaults. *Jīvaka* cut open the belly and after disentangling the intestines stitched the skin and applied a salve on the wound for its quick healing.[18]

On another occasion an intricate case was brought to *Jīvaka.* A person was ailing from some disease in his head for a long time and he had been declared to be incurable by other competent doctors. *Jīvaka* examined the patient and asked him to be in the bed for seven weeks. The patient was tied to the bed in order to keep his head in position. And then the skin of his head was dissected, the flesh was drawn apart and two worms which would have precipitated his death were pulled out. The wound was closed and stitched and a salve applied. The patient was made to lie on the bed for some days and was cured completely.[19] Likewise *Jīvaka* was credited with many other surgical operations also. He charged exorbitantly for his treatment. It is stated that for intestinal operations he exacted sixteen thousand *kahapanas.* In a particular case he asked the patient to pay one hundred thousand *Kahapanas* to him and another hundred to the King under whom he was employed.[20]

The people of the *Jātaka* period were familiar with innumerable delicate surgical operations. The surgeons of those days could fix a false tip to a man's nose, accidentally cut by the edge of a sword. They painted it so nicely that it exactly resembled a real nose.[21] Jivaka's eye-operation on King Śivi in this connection is worth mentioning. "The king Śivi wanted to give away his eyes to a Brāhmaṇa who begged for them. With great pain and hesitation, Śivaka the surgeon, set to his work : He pounded a number of simples, rubbed a blue lotus with the powder, and brushed it over the right eye : round rolled the eye, and there was great pain........Again he rubbed in the powder and brushed it over the eye : the eye started from the socket, the pain was worse than before......A third time he smeared a sharper powder and applied it : by the drug's powder went the eye, out came from the socket and hung dangling at the end of the tendon ......The pain was extreme, blood was trickling, the King's garments were stained with the blood. Then Sivaka, with his left hand grasping the eye-ball, took a knife in his right and severing the tendon, laid the eye in the King's hand. In the same way the left eye was also taken out and both the eyes were then placed in the eye-sockets of the Brāhmaṇa who then began to see.,'[22]

Kālidāsa in his Kāvyas makes sparse references to the surgery known to his period. Referring to *Rasaratnāvali*, he mentions amputation, burning or passing out the blood from the wound caused by bite as a possible cure.[23]

Suśrūta Saṁhitā, the basic text book of Indian medicine of the 4th century A.D. deals with surgery in much detail. The surgeons of the Suśrūta school even declared that "surgery is the first and best of the medical sciences less liable than any other to the fallacies of conjectural and inferential practices, pure in itself, perpetual in its applicability, the worthy produce of heavens, and certain source of fame."[24] The term for surgery is '*Salya*' or the art of extracting the alien matter from the body, particularly an arrow. The word appears to have had its origin in warfare and in the accidents of out-door work like agriculture or hunting.[25] The surgeons of the day were so proficient that they knew lithotomy, extraction of the dead foetus, and removal of external matter accidentally inducted into the body, like iron piece, stone, bones etc. They were familiar with paracentesis, thorax and affections of the abdomen and treated different kinds of inflammation and abscesses. Adroitness in cutting and healing ulcers and setting bones and the use of escharotics were the forte of a section of medical men. The dissection of the human body and venesection were common things in medieval India. The doctors of the Suśrūta School opined that for correct knowledge of the internal structure of the body, dissection was necessary as it gave them a consummate knowledge of the diseases to which the body is susceptible. It also guided them in their surgical operation to avoid the radical parts of the body, besides giving them an accurate knowledge of the human anatomy.[26]

In fact the notability of Suśrūta Samhitā lies in surgery. It explicitly recounts the mode of surgery practised in those times. It speaks of oleation (*Snēha karme*), amputation (*Chēdya karma*), incision (*Bhēdyakarma*), venesection or perforation (*Vēdya karma*), probing (*Eṣya karma*), extraction (*Āhārya karma*), draining or evacuation (*Visrāvya karma*), stitching or sewing (*Sīvya karma*) bandaging or ligaturing (*Bandhana, karma*) plastic surgery of ear (*Karṇa sandhibandha karma*), cauterizing (*Agnikṣāra karma*) inserting catheter into the bladder (*Nētra praṇidānavasti karma*), and inserting tube into an ulcerated channel (*vraṇavasti pīdana karma*). Suśrūta Saṁhitā states that the man proficient in the aforesaid works would not commit mistakes in his surgical operations. It prescribes further that the student of surgery should be taught oleation and amputation only after he became well-versed in other branches of medical science.[27] According to *Susruta Samhita* the students were to be taught amputation on the fruits like *Ālābu*, *Kālindika*, *trapusa*, *ervāruka*, *Panasa*,etc. for all laboratory practices. The incision was to be learnt on leather bags filled with water or soft mud. *Lekhya* karma would be made in regard to skin having hair. The venesection or perforation was taught by taking the vein of a dead animal. The student would learn probing from hollow bamboo or bottle gourd. Extraction was learnt by removing seeds from *Panasa*, or *Bilva* or by removing the teeth of a dead animal. Draining or evacuation would be taught on *Salmali* table coated with wax. Stitching was to be learnt on smooth skins of thick clothes. Bandaging or ligaturing was taught only the flexible model of the human body, while plastic surgery of the ear was taught on smooth skin or vein or flesh. Caustics were inculcated on smooth flesh.[28] *Netrapranidanavasti karma* and *Vranavasti pidana karma* were made to be learnt on *Purnaghata* filled with water. It was said that nobody can be proficient in venesection as the veins are difficult to control on account of their flexibility[29] and hence it should be learnt with care.

*Suśrūta* speaks profusely of surgical wards. They should be capacious and airy and were to be constructed in accordance with vastu. Nurses with kindness, forbearance, winning manners and robust health were employed particularly in surgical wards. The beds in the surgical wards were to be absolutely cosy. The injured persons would be taken into these surgical wards and made to lie on the beds with their heads on the north side.[30]

Further *Sūśṛṁta Saṁhitā* insisted that all the surgical wards should be provided with *Yantra*, *Sastra*, *Sara*, *Agni*, *Śalāka* (probes), *Śṛṅga*, *Jalauka* Alabu (sucking gourd), *Jambausta*; *Picu* (swab), *Prota*, *Sūtra* (thread), *Patyra patta* (bandage), *Madhu*, *Dhṛta*, *Vasa*, *Apaya*, *Taila*, *Tarpana*, *Kaśāsa* (lotion), *Ālēpana* (ointment), *Kalka* (paste), *Vyajana*, cold and hot water and basins.

Innumerable surgical instruments have been mentioned in *Suśrūta Saṁhitā*. They include *Svastika yantra*, *Samdamśa yantra* (forceps), *Tāla yantra*, *Nāḍi yantra* and *Śalākā yantra*. *Svastika yantra*, in twenty-four varieties, was used for removing bones ; *Samdamśa yantra* sixteen inches in length, was used to remove *Tavaca*, *Māṁsa*, *Sirāsnāyī*. The *Tāla yantra*, fifteen inches in length, was utilised to remove the bones of ears and nose. *Nādī yantra* with its two faces was used in several ways. The *Śalāka yantra* of which there were twenty-seven varieties was used for *Gaṇḍūpada*, *Sarpaphaṇa*. *Sarapkunha* etc.

Besides *Śastravicāranīya*,[31] a chapter in *Suśrūta Saṁhitā*, enlists surgical instruments such as circular or round knife (*Maṇḍalāgra*), saw (*Karapatra*), scalpel (*Vṛddhipatra*), abscess knife (*Prayatāgra*) nail pairs (*Nakhaśāstra*), lance (*Utpala patra*), single-edged knife (*Ardhadhāra*), needle (*Sūcī*) bistoury (*Kuśapatra*), *Atīmukha*, *Sarārimukha* curved bistoury (*Antarmukha*), *trikūrcaka*, *Kuṭhārik*, trocar (*Vrīhimukha*), owl-like knife (*Ārāpatra*) narrow bladed knife (*Vetasapatra*), hooks (*Badiśa*), *Dantasaṇku* and sharp probes (*Eṣanī*). The measurements of the instruments are also given. Among these *Nakhasāstra* and *Eṣanī* should each be eight inches in length. '*Mudrika*' would be of *Pradesini* measurement. The *Sararimukha* sastras should each be ten inches long while the rest should each be six inches long. According to *Suśrūta* these instruments have eight usages. All these surgical instruments are to be made of good metal and should be handy with sharp edges.

Besides a number of *Upayantras* (minor surgical instruments) are also mentioned. They include *Rajju*, *Venika*, *Patta*, *Carmanta*, *Valkalata*, *Vastra*, *Astilasma*. *Mudgara*, *Panitala*, *Padatala Anguli*. *Jihva Danta nakhamukha*, *Asvakataka*, *Saka*, *Stivana*, *Pravahana*, *Harsa*, *Dyaskantmayaksara* and *Agnibhesaja yantra*.

Interestingly sundry *Sūtras* are referred to in *Śuśrūta* in regard to the stitching of the wounds which was done in four ways namely, *Villita*, *Gophanika*, *Tunnasivani*, *Rjugranthi*. Three kinds of needles are mentioned, a round needle two inches long to stitch in places where there was little of flesh or to stitch corners, a triangular needle three inches long to stitch fleshy or fatty places and a bow shaped needle to stitch abdomen or private parts. After stitching, the wound would be dressed with cotton or silken cloth.

Much is said about bandages in the *Suśrūta Saṁhitā*. It says that wounds or injuries can be saved from further damage by bandaging. For bandaging a wound materials like *Kṣauma*, *Karpāsa*, *Āvika*, *Dukūla Kausūya*, *Patrorṇa*, *Carma*, *Bhūrjapata* are to be used. In fact *Suśrūta Saṁhitā* mentions fourteen varieties of bandages with reference to their proper use.

The surgeons of the day had an important role to play when the King was on military expeditions. A separate chapter '*yuktēsiniya*' in the *uśrūṭa aṁhitā* is set apart to deal with the role of the surgeons and physicians in military camps. In times of war, the doctors had to protect the King and his army from all unhygienic and food-poisoning articles. In encampments the surgeons lived next to the King's tent. A flag was hoisted over the surgeons' tent for its easy identification. People in ailment had free access to this tent.

Thus the *Suśrūta Saṁhit*a throws lucid light on surgery as known at that time. As evident from the aforesaid account, surgery in ancient India was so much evolved and exemplary that in the later Periods also its principles were followed. It the words of A.L. *Bashan*

'In this respect Indian surgery remained ahead of European until 18th century, when the surgeons of the East India Company were not ashamed to learn the art of rhinoplasty from the Indians.'[32] In surgery Indians were probably superior to any of their oriental neighbours.[33]

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14. *Vin.*, I, 206 (Ed. *Pāli Text Society*)
15. *Ibid.*, 205
16. pp. 27-43
17. *Vinaya Pītaka*, 1. pp. 270; Rockhill, W. *Life of Gautama*, (ed. London 1907) p. 65.
18. *Vin.*, I, pp. 275-76
19. *Vin.*, I, 27; *Mahāvagga*, VIII, 1, 18-22
20. *Vin.*, 1, p. 275
21. *J.I.*, *p.* 455; *Vejje datvānāsikakotiṁ phāsukam Karapetva lakhāya paṭināsikam kāretvā.*
22. Mehta, R.N. *Pre-Buddhist India*, (Bombay, 1939) p. 309-10; J., IV pp. 407 ff.
23. *Māl.*, p.70; Similar remedies are given by *Vāgbhata* VI
24. *Commentary on the Hindu System of Medicine*, Calcutta, 1825
25. Sarkar, B.K. *Hindu Achievements in Exact Sciences—A study in the History of Scientific Development*, p. 53
26. See Hoernle, *Medicine of Ancient India*, *Oxford*, 1907
27. Adhigata Sarvaśāstrarthamapi śiṣyaṁ yogyām kārayēt Snehādiṣu chedyādiṣu ca karma pāthamupadiset Bahuśrutopi akṛtayogya karmasvayogya bhavati

28. Wilson, "*Essays on Sanskrit Literature*", Vol. I, London, 1864
29. Sirāsu śikṣito nāsti calāhyetah svabhāvatah Matsya vat parivartante tasmādyatnēna tāḍayet (*Su. sam. sū.*, 8/20)
30. Tasmin śayana masambādham svāstirnam manojñam prākśiraskaṁ saśastram ca kurvita".
31. Vimśathihi śastrāṇi tadyathā-maṇḍalāgra karapatra vṛddhipatra nakhaśāstra mudrikotpalapatrakārdhadhāra sūcī kuśapatrāṭimukha śarārimukhāntarmukha trikūrcaka kuṭhārika
    vrihīmukharāvetasapatraka badiśa danta sankvesanya it i
32. Basham, A.L. *The Wonder that was India*, London, 1953 p. 500
33. *Encyclopaedia Britannica*, Vol. 15, p. 197

# 11

# RATIONING AND THE FAMINE RELIEF MEASURES

Rationing is rendered inevitable due to shortage of food. Shortage of food is an aftermath of war. Now the question is whether the ancient Indian people knew rationing. The *Anguttarra Nikāya* a 'Pāli text' throws some light on this interesting issue. It says that a city situated on the frontiers should have strong fortifications and be provided with four kinds of supplies viz. grass, wood and water, rice and corn besides stores of sesame, beans, vetches, cereals and medicaments; consisting of ghee, fresh butter, oil, honey, sugar and salt, to tide over the machinations of the enemy. Evidently, the ancient Indians were fully aware of the difficulties of supplies during war and adequate arrangements for food and fodder were made to meet the needs of citizens and city garrison to meet any emergency. Apparetnly, a sort of rationing must have been existing within the walled city.

## STORIES

Rationing seems to have been a favourite method of famine relief in ancient India. Famine is generally due to natural causes. India has been an agricultural country from times immemorial. Lack of rains or excessive rainfall brought famine. The *Jātaka* relates heart-rending stories of such famines. Floods also some times brought famine condition. The '*Divyāvadana*' gives a realistic description of famines. It has classified famines into three heads namely *Cancu*, *Svetasthi* and *Salakavrtti*, based on the degree of its severity. In the *Cancu* famines, people used grains collected in a box for the appeasement of the dead, in the 2nd type, people boiled bones and drank the soup (*kvatha*), in the '*Śalākavṛtti*' famine, people drank the gruel of grains and molasses. Such was the plight of the people during famine times. The

*Rūpavati Avadana* gives detestable picture of famine conditions. *Rupavati* met, a famished woman, who was at the point of killing and eating her own baby when Rūpavti intervened and fed the hungry mother with her own flesh.

## RELIEF MEASURES

The famine relief policy laid down in '*Arthaśāstra*' is quite interesting and exemplary. It was the duty of the king to seize forcibly the seed grains and other food material from the hoarders and the rich and distribute them among his subjects.

In the absence of a National Government which alone could strictly enforce this measure, the attempt did not meet with full success. The inhabitants of the famine-affected areas were asked to construct bridges or embankments and forts in consideration of food. In such conditions rationing was introduced to mitigate suffering caused by food deficit. The king ordered the people in famine area to emigrate to food-surplus lands. When the situation was very acute, the king was advised to migrate with his subjects to such regions where water was available such as seashore, lakes etc. the idea being that acquatic animals could provide at least a part of their food. As a measure to tide over food deficiency, the king asked his subjects to grow more grain, fruits, vegetables etc. in those parts of the country where artificial means of irrigation were available. He even went so far as to take recourse to mass hunting and fishing to provide meat for his subjects. This corresponds to the 'Grow More Food' compaign of the present times.

## STORE HOUSES

Many Epigraphs of the Mauryan period confirm that the rulers in ancient India did their utmost to safeguard their subjects against the ravages of famine. An inkling of famine relief measures adopted in Mauryan period can be had from one such epigraph which refers to '*dravya*,' store houses which stored grains and spices for distribution during a famine. According to other inscriptions, money was kept at the disposal of a certain offices for distribution among the people in distress. Kautilya believed rationing as one of the effective and definite famine relief measures. But he does not give any details as to how this measure should be brought into force. A very graphic description of rationing during famine is, however, found in the story of Kanaka varma in *Divyāvadāna*, which is as follows:

### 12-YEAR FAMINE

The kingdom of Kanakavarna which enjoyed abundant prosperity and tranquility was threatened with grim prospects of famine lasting for twelve years. The clever king, in order to get over the calamity, decided to collect grain from all over India. After taking a census (*gaṇaṇa*) of all people and surveying the position, he decided to start a store house in every village, city and townlet, which was to provide equal amount of grain to every one (*Saman bhaktam*). With a view to materialise his scheme he summoned his Accountant General (*Gaṇaka mahāmātra*), Ministers (*Amātya*), Chamberlains (*dauvārika*) and members of Council (*parisadya*) and ordered them to collect grain from all over the country, to take census, and start grain houses everywhere to enforce rationing. Kanakavarna ordered the Accountants (*Samkhya gaṇaka*) and clerks to proceed in all directions of India and having ascertained the bonafides of every man, distribute fixed ration. They carried out the order of the king faithfully.

Eleven years of famine thus passed off but in the 12th year the accumulated grain stock was exhausted and people began to die of hunger. Only the king had a measure (*maṇika*) of his share. At this point the story becomes religious in spirit. The king offered his own share to Bodhi Sattva despite the remonstrances of his officers. The result was that the Bodhi Sattva brought back prosperity to the country. This story in the *Divyāvadāna* however does not claim to be historical. Incidentally the story throws light on the working of famine relief organisation in ancient India and the great care the rulers of the country took towards the welfare of their subjects in times of distress.

Thus the measures that used to be taken can be summed up as: Taking stock of the existing food position, taking census of all people affected by famine and entitled to relief; acquisition of food-grains and stocks from the area for equitable distribution (*bhakta-Samvibhaga*), import of foodgrains from surplus areas and setting up store houses, in every villages, cities and townlets to ensure proper redistribution, requisitioning the services of the entire state machinery from the highest to the lowest staff and coordinate the famine combat effort. The officers in their turn, carried out the orders of the king faithfully as stated in the story of *Divyāvadāna* treating every one of the subjects with justice and equality. Providing monetary help to the people, initiating intensive compaign for growing more food, vegetables, edible roots, fruits, fish etc., migrating population in deficit areas to surplus areas. The migration could be in the form of wholesale transfers (*Vamana*) or simply removal of non-essential sections of the population from the distressed areas (*Karsanas*). Construction works like bridges, embankments etc. also formed part of famine relief measures.

## 12

## THE DISPOSAL OF THE DEAD IN EARLY TIMES

References to the disposal of the dead in the early Indian literature are plenteous and the earliest of them we find in the Vedas.[1] The physical need combined with religious superstition necessitated the disposal of the dead inevitable and indispensable. The putrefication of the corpse rendered it impossible to keep the dead body in a house for a long time. Besides, the disease and the death of persons caused pestilence and contagion in the family. However, the main object of the disposal of the dead seems to be release of the survivors from the pollution of death and accord rest to the dead. It has been the general belief that the performance of the funeral ceremonies would secure a befitting place to the soul in the next world. Significantly, similar mystic importance came to be attached to the funeral ceremonies among the ancient Greeks and Egyptians.

The *Rig Veda* alludes to two modes of disposal of the dead namely *Agni-dagdhā* (cremation) and *Anagni-dagdhā* (burial).[2] However, the earliest method of disposing the dead seems to be the sub-aerial deposit or leaving the body on the ground. This was required among the primitive people who were nomadic. As they had to ramble from place to place seeking food and fodder, the dead and the diseased proved to be onerous on the wandering family and they had to resort to the method of the exposure of the dead as the means of disposal. In this connection the reference to two words *parōpta* (casting out) and *Uddhītāḥ* (exposure of the dead) in the *Atharva Veda* (xviii, 2, 34) need mention here.[3] Again *Bṛhad Āraṇyaka panisad*[4] informs us that when the heart departs from the body the dogs eat it and the birds tear it into pieces. The body gets such an end due to the absence of the heart. This may indirectly refer to the custom of casting out the dead body to be devoured by the birds and beasts. But it becomes difficult to comprehend how the Upaniṣads speak of it when the *Saṁhitā* of the *Rig Veda* is silent about it. In the *Mahābhārata*, another mode of disposing the dead namely tying the dead body on the top of the tree is indicated. In *Vanaparva* it is stated that the Pāṇḍavas concealed their weapons on *Śamī* tree. In order to save it from the disclosure they told the people that they were tying the corpse of their mother who died on the way, on the top of the tree. This would incidentally indicate the mode of disposing of the dead in vogue at the time. But nowhere the cave burial has been cited among the funeral ceremonies of the Hindus;[5] whereas references to water burial are available. It is said that small children, ascetics, mendicants and in certain cases married men and women who die of epidemics were given water burial.[6]

Inhumation or burial proper prevailed in the *Rig vedic* times.[7] References to them in the *Vedic* literature are profuse[7] and in fact one complete hymn is set aside to the ritual attending it.[9] It was the hoary practice to bury the dead man in full attire with bow in his hand. Sometimes the wife of the deceased committed *Satī*[10], the practice which was commonly prevalent among the savage tribes. This practice underwent a modification in the Vedic period. The son had to take the bow from the hand of the dead man and the widow was taken away from her husband by his brother or nearest kinsman. A stone was set to demarcate the separation between the dead and the living.

Among the funeral ceremonies of the Hindus, reference is made to *Pitṛmēdha* or *Smaśāna* (i.e.) the building of a mound over the remains of a dead person. There should have been a great fillip for erecting a mound or tomb over the grave. In the Vedas we have no direct reference to this custom. However *bhūmi-gṛha* (house of earth) and *Vṛkṣa* (a coffin) are referred to.[11] But the *Śatapatha Brāhmaṇa* gives a graphic description of the *Smaśāna* ceremony. It gives different opinions regarding the mode of the construction of tumili.[12] It prescribes a four cornered mound facing the south-east on ground inclined to the North, afar from the village in a tranquil spot or on barren ground.[13] In this connection we get a word *camu* meaning a trough made of either solid stone or consisting of bricks used to protect the body of the dead from contact with earth similar to the stone-lined graves.[14] At the time of the *Gṛhya sūtras*[15] this custom was not universal. It was in vogue with some modifications in the procedure in the *Śatapatha Brāhmaṇa* period. Among the Buddhists, however, this custom of raising a mound was very popular[16] and the Hindu *Śāstrakāras* restricted this honour to the great saints, monks, etc.

Preservation of the dead body in the house with or without desiccation or mummification has not been mentoned anywhere in the ritual literature of the Hindus.[17] But it appears that embalming the dead body for a short time was known in ancient India. Interestingly, the *Satyasadha Śrauta Sūtra* and the *Vaikhānasa Śrauta Sūtra* insist that the corpse of the *Ahitagni* should be placed in a tub or trough filled with seasame oil and brought home in a cart.[18] It is said in the *Rāmāyaṇa*[19] that the body of Daśaratha was kept for several days in a tub filled with oil till the arrival of Bharata. The *Visṇupurāṇa*[20] reveals that Nimmis body did not decompose and looked fresh owing to its coverage with oil and redolent substances. Sayana mentions the custom of putting the bones of the dead into an urn (*Asthi sañcayana*)[21] and urn burial should be regarded as a relic of ancient custom of burial which was being replaced by the custom of cremation.[22]

The cremation or burning of the dead body is the most accepted mode of the disposal of the dead among the Hindus from the time of the Vedas. The most puissant factor that gave the custom of cremation a lasting position was the religious belief of the indo—Aryans. Fire was regarded by them as messenger of the gods on earth and the carrier of the oblation offered to them.[23] It was also believed that the evil spirits mostly originated from the iniquitous souls of the dead persons buried in the earth.[24] So the people resorted to cremation to avoid such contingency. Morever the funeral *mantras* of the *Vājasanēya saṁhita*[25] direct to the contemplation of burning. The body was wrapped in fat and a goat was also buried alongwith it in accordance with the rules laid down in the *Rig Veda*. The belief was that the goat would act as a guide to the dead body on the way to the next world.[26] It was expected that the dead would revive with his whole body and all his limbs [*Sarva tanuh sanghah.*][27]

The jain literature accords ample information about the various ways of disposing of the dead practised in the Jain period. The Jain texts speak of the custom of leaving the dead bodies to the mercy of wild beasts and birds.[28] A reference is made to *giddha pithaka* a kind of death in which a person threw himself among the corpse of human beings, elephants, camels etc., allowing his body to be devoured by vultures. It is said that the bodies of the criminals and the indigent were thrown away to rot and to be devoured by jackals and vultures.

The jains knew water burial also. At times it appears, under the instructions of the kings the ascetics were buried in a hollow (*agādha*), lakes, rivers, or by the side of these places.[39]

The malacchas buried their dead in the stipulated burial ground (*madagagiha*: *Madagaina*.) Such burial houses were in plenty in the country of Deva and Jova.[30]

The Jain monks were cremated and shrines and stupas Tubalena were erected over them. The *Tittira Jātaka*[31] informs that the bodies were cremated with sandal wood, aguru the Rukka, ghee and boney. When the fire consumed the flesh and blood from the body, the bones were collected and consecrated in *Ceiya tubas*.

The *Cheda-Sūtras* elaborately prescribed the rules for disposing of the dead body of the Jaina monks.[32] In the event of the death of a monk a brier to carry the corpse should be made ready and the proper place for the cremation in the *tanḍila* (for cremation ground) had to be demarcated. Wrapped with pure white cloth the corpse should be carried by monks or by laymen in a cart or with the help of the Mallas or Candalas.[31] At the cremation ground the corpse should be disposed of duly with the permission of the keeper of the cemetery.

Thus the Jains honoured the dead greatly. The ceremony of taking out the dead body, *Nīharaṇa*, was performed by them with great ostentation and splendour *iddhi skhara* and the many funeral rites were attended to with great solemnity.[31] Paying homage to the dead *madagapuyana* and mourning are referred to invariably in the Jain literature.[35]

Likewise, much can be known about the disposal of the dead from the Buddhist literature also. The early Pali texts refer to two kinds of grounds viz. Alahana (*Ardhamāgadhi*. *Adhana*) and *Sivathika* or *Amakarusana* for the disposal of the dead.(*Slahana Ardhamāgadhi*, *Sdahana*) was the place where the dead bodies were cremated. In *Sivathika* or *Amakarusana* the corpses were thrown away to undergo the natural process of decay or to be devoured by wild beasts. *Susanagopakas* who were generally Caṇḍalas were in charge of *Smaśāna*,[36] The texts also refer to an aboriginal custom of burning the dead and washing the bones (*atthi dpana*).[37]

The dead bodies of persons of high rank and honour like great rulers and teachers were cremated and Tupas were created over the ashes or relics.[38] The *Mahāparinibbāṇa Sutta*[39] vividly describes death and cremation of the great teacher, the Buddha. His dead body was wrapped with five hundred alternative layers of new clothes and carded cotton wool and was kept in a closed iron vessel on the funeral pyre made of different kinds of odourous wood. Towards the sunrise the four chieftains of Mallas bathed and set fire to the body of the Perfect One. Buddha's body was cremated before the city gates of Kapilavastu with all honour and pomp that was given to an Universal monarch. Later when the fire was extinguished the bones were collected and distributed among many who wishes to erect stupas over them.

Kauṭilya in his Arthaśāstra[40] also indirectly refers to the modes of disposal of the dead. He states whoever inters or cremates the the dead body beyond the demarcated burial or cremation ground, should be fined with twelve *paṇas*. Similarly whoever throws the human corpse inside the city limits other than the cremation ground he should be penalised with fifty *paṇas*.

The Sangam literature of the South also alludes to the three methods of the disposal of the dead, namely complete burial, partial burial and cremation.

The later accounts left by the Chinese travellers also mention the ways of the disposal of the dead in vogue during the period. Yuan Chwang who visited India in the 7th century A.D. speaks of the funeral customs like water burial, cremation and interment in the wilds. In water burial the dead body was put into a stream to float and dissolve.[41] Besides, Yuan Chwang also refers to another method of disposal of the dead akin to the water burial. The persons who were old, nearing mortality or afflicted with incurable diseases desired to caste off humanity. Such persons were made to sit in a boat and were taken to the middle of Ganges where they drowned themselves with great expectancy of next birth in the heaven.

Bāṇa's *Harṣacarita* informs us that Harsa's father, Prabhākaravardhana, was cremated on the banks of the river sarasvati where a pyre befitting an emperor solemnly consumed all but his glory in the flames.[42] But Kālidāsa commended death at a holy place like Prayāga the confluence of two rivers like Yamuna and the Sarayu (Ganga).[43] The interment in the wild prevalent at Taxila probably was then current among the Hūṇas.[44]

The literary references to the disposal of the dead in early times are thus discernible through ages which clearly indicate different methods adopted by the people in disposing of the dead.

## RBFERENCES

1. *RV*, XIII, 1, 2, 3, 4; AV, XVIII, 2-34; *Taititrīya Brāh*, iii, 1.1.7.
2. *RV*, X, 15, 14; Hopkins, *Journal of the American Oriental Society*, 16, CIIĪ; Winternitz, *Geschichteder indischan*, 1, 84, 85.
3. Zimmer quotes a similar custom among the ancient Germans (Zimmer, *Act Laben*, 326-328). He also speaks of the practicc of casting out the dead to be devoured by the beasts among the Iranian (Zimmer, *Altindisches Leben*, 426); Whitney refers to the expression—exposure of the dead body on a raised platform (Translation of the *Atharvaveda*, 841). Kaegie interprets certain *Rig Vedic* verses as indicating the prevalence of similar customs among the *Rig Vedic* Aryans (*Vedic Index*, 1.351, 352). His theory has been refuted by R.B. Pandey Hindu Samskaras—*A Socio-religious study of the Hindu Sacraments*, (Benaras, 1894) pp. 414. 415 *Man in India*, vol. xvii, no. 1 and 2, pp. 1-68.

4. Chapter III, *Brāhmaṇa*, ix, 25.
5. In Rome it appears that more than four thousand monks are preserved in the walls of the subterranean burial chapels in the Capuchin church near the Piazza Barber. See also Puckles' : *Funeral custom*, p. 136
6. Pandey, *op. cit*., p. 417; see also E.S. Hartland, *Encyclopaedia of Religion and Ethics*, Vol. IV, p. 421
7. x, 18-10-13; x, 15-4, vii, 89.1
8. *Ibid*., A. V. 5. 30-14; 18.2.34; xviii, 2-25; In *Candogya Upanisad*, (viii. 8.5) a reference is made to burial; vide Schrader, Aryan Religion, *E.R.E*- Vol. II, p. 115-57
9. X. 18
10. For the origin and development of the *Sati* sacrifice see author's article in *Orissa Historical Research Society Journal*, vol. XI, (1963), no. 4, pp. 201-205.
11. *R V* vii. 89, 1; A.V.V. 30-14; XVIII, 2.52; A V XVIII, 2, 25, 3, 70 cf. *Bṛhaddevata*, v. 83 with Macdonell's note (d).
12. xiii. 8, 2, 1
13. XIII. 8, 1, et seq. cf. Eggeling, *Sacred Books of the East*, p. 44, 525 et. seq. cf Zimmer, *Altindisches Liben*, 407; Hopkins, *Journal of the American Oriental Society*, 16 CIII.
14. xiii, 8, 2, 1; Eggeling, *Sacred Books of the East*, p. 44, 430, n. 1.
15. *ĀGS*, iv. 5
16. Author's article "Caityas not exclusively Buddhistic in origin", in *QJMS*, pp.1-4
17. Mary Levin's hypothesis advanced in Mummification and cremation in India in *Man*, Feb. no. 18, 1930 that the mummification was practised before the mode of cremation came into use.
18. 29. 4. 29; 31-23
19. *Ayodha*, 66. 14-16, 76.4
20. iv. 5.7.
21. References to the rite we get in *Śān. Sr*., IV.15 12-18, *Sat. Br*., 28, 3, *ĀSV. Gr*, iv 5. 1-18, *Gaut. P.S*, 1.5 *Vishṇu Dh. S*., 19-10-12, *Baud P.S*., 1-14 *Kausika Sūtra*, 82-29, 32, *Vaik Smarta Sūtra*, v. 7; *Yama*, 87-88, *Samvarta* 38, *Gobhila-Smṛti*, III. 54-59
22. *Ā.G.S*, IV-5
23. *RV*, x, 14. 8
24. A.A. Macdonell, *Vedic Mythology*, p. 10. cf. Oldenburg, *Religion des Veda*, 62-2; Villiamy, in Immortal Man, p. 34 opines that one of the purposes of cremation may have been the complete destruction of the human aspect of the ghost or its transference to a region from which contacts with mankind, in any material sense, was impossible, P.V. Kane, *History of Dharmasastra*, (Poona, 1930-627) Vol. iv, p. 232 foot note 2.

25. xxv cf. also *Kauśika Sūtra*, 80 et. seq; which treats the Atharvaveda hymns, xvii, 1-3, as intended for burning only.
26. *RV* x, 16, 4.
27. *Śatapatha Brāhmaṇa*, iv, 6, 1
28. *Matra Ni*, p. 25. cf. *Lalitavistara*, p. 265
29. *Brh, Bhā*, 3, 48, 24.
30. *Nisī-cū.*, 3, p. 330; *Ācā. Cu.*, 370
31. The *Tittira Jātaka* (no. 438) III, p. 537 mentions topes of Sarid (*Valuka tupa*); also *Parama Thadepani* the com. on the *Udena*, p. 97, cf the fineral ceremonies in the *Rāmāyaṇa* (v. 25, 16 ff )
32. See *Visavagbha-vana prakrtam*, *Bṛh. Śu.*, 4.29 and its *Bhāsya*, 5497-5565
33. *Vya. Bhā.*, 7.449, p. 79 ff. According to *Manu* also the candalas to carry the corpse of persons who have no relatives.
34. *Vya-Bhā* 7.442, p. 76 ff; also *Ava Nir Dīpika*, vol. II, 95 ff. *Ava cu.*, II, pp. 102-9; *Bhagvatī Aradh*, 1974-2000
35. *Brh. Sū* 1.47 and the *Bhāsya*, (1.3139-3206) and also *Acā*, 11.1, 2, 3, 236 ff; *Das*, 7. 36 f.
36. *Dhammapada commentary*, i.p. 59
37. *Anguttara* V, p. 216; *Sumaṇgala vilāsini*, i, p. 84; see also Pathak, K.B., *Commemoration volume*: B.C. Law, *Social, Economical and Religious conditions of Ancient India*. According to Buddhist Texts, p. 7, 3, Govt. Oriental Series, Class B. No.7. *The Bhandarkar Oriental Research Institute*, Poona.
38. But there is some difference between the stūpas of an ordinary man and exalted person as is minutely described in Vinaya text-*Samyuktavastu*, chap. xviii
39. Krishnamurthy, K. "The Great Decease (death) of Buddha", *JAHRS*, Vol. XXIX, parts 3 & 4, pp. 51-54; see also *RAS* for 1906, pp. 655-671 and 881-913; I-Tsing, A Record of the Buddhist Religion as practised in India and the Malaya Archipelago (A.D. 671-695) translated by Takakusu, I. pp. 81-82.
40. Shyamasastri, R. *Arthaśāstra*, Chap. xxxvi, p. 163
41. Yuan Chawng, *On Yuan Chawng's Travels in India* (A.D. 629-45) edited by Rhys, Davids, T. W. and Bushell, S.W. London, 1904. p. 174; Hiuen Tsiang, *Buddhist Record of the Western World* (*translated from the Chinese*) by Beal S, I., p.86
42. Bāṇa, *Harṣacarita*, p. 164
43. *Raghu*, viii, 95, p. 182
44. Strabo, xv, p. 714; J A, 1915, p. 75; cf Tarn, *The Greeks in Bactria & India*, (Cambridge, 1951) p. 137

## 13

# POTTERY—ITS TECHNICAL ASPECT

Ceramics[1] or the art of Pottery-making is very senile with its field limitless and interminable. It has interspersed with the social life of the man so much as a result of which every age witnessed the silent and steady evolution of the pottery with its distinction. As the present age may be labelled as the plastic Age, the Electronic Age or the Atomic Age even in ancient times, there might have been a Clay Age which was deferred, considering it as trivial. But the archaeologist of to-day have recognised the importance of Pottery in constructing the chronological sequence of a site and have rightly termed it as 'Alphabet of Archaeology'. Among the 19th century archaeological pioneers of Western Asia Loftus was the first to assent and clearly express the value of pottery for dating purposes. The student of Pottery can construe the subject comprehensively when he studies its technique of preparation and its historical background. But to know the historical aspect of Pottery, its technical knowledge become essential. As such an attempt has been made to visualise the technical aspect of the Indian Ceramics in the foregoing pages.

The origin of the Pottery-making, like many other institutions is muffled in the hazy mist of antiquity. It is believed that the Pottery came into being only towards the end of the Mesolithic Age or the beginning of the Neolithic Age. Its conception was fairly primitive and it appears that the origin of the pottery-making was purely accidental.It so happened when a primeval man placed his leg on a wet clay and when he saw it after it was hardened and dried up, the clay took a form or a shape, then the idea came that it could hold some substance. Although he did not realise what was happening, the primeval man witnessed, for the first time, the process of plastic clay, being deprived of its plastic properties by drying action of the sun and its transmutation into a hard substance. It gave incentive for the people to give forms to clay according to their whims and fancies. Firstly the pottery making was confined to women alone as the men were engaged in their task of hunting food.[2] They began to paste the clay over the woven wicker basket and threw them into fire as a result of which the wood material having burnt left the clay substance in concrete shape. Thus to start with, seemingly the pottery-making was only hand made. Bible makes reference to the usage of hand made pottery by Israilites. But, when the wheel-made pottery was introduced in India and how this conception of throwing the pottery on the wheel occurred are not known. It is believed that the wheel-made pottery was in prevalence in Egypt right from the time of the recorded history. It may be interesting to note that the burnt ceramic ware found in the Nile valley excavations is estimated to be 13,000 years old. Some Vases were also discovered from the tombs of Memphite period (5,000 to 3,000 B.C.) in Egypt. In Babylonia and Assyria the art of pottery-making reached high state of efficiency many centuries before Christ. It may be that the Indians had learnt the manufacture of pottery and glazes from the Assyrians and Chalduans. But as it may appear in Prehistoric time they developed their own pottery art. Apparently by 3rd millinium B.C. in India the art of pottery-making reached its high order.

While studying the Technical aspect of pottery the following subdivisions render indispensible—

| A. Fabric | B. Surface treatment | C. Firing | D. Decoration | E. Forms |
|---|---|---|---|---|
| 1. Clay | 1. Slip | 1. Open kiln | 1. Incised | 1. Rim |
| 2. Preparation of pastes | 2. Burnishing | a) Oxidizing | 2. Applique | 2. Neck |

| | | | | |
|---|---|---|---|---|
| 3. Tempering material | 3. Wash | b) Reducing | 3. Stamped | 3. Shoulder |
| 4. Turning or throwing | 4. Glaze | c) Inverted firing | 4. Moulded | 4. Body of profile |
| 5. Moulded | 5. Salt Glaze | 1. Straight firing | 5. Painting | 5. Base |
| | 6. Wet smoothing | 2. Closed kiln Sagger firing | | |

## A. FABRIC

CLAY[3]—Clay can be broadly defined as fine grained, earthly material that develops plasticity when mixed with water.[4] But the clay research of the last three decades has revealed that the vast majority of clay materials are crystalline having[5] distinct structural patterns that directly influence their properties. However the potter's prime need is good clay. In fact upon the quality of the clay depends the strength of the pot and hence the potter is very careful in the selection of clay. Broadly speaking the clays are of two kinds namely, Primary clay and Secondary clay. The clay that remains in contact with the igneous rock from which it is formed, is known as primary or residual clay. Such clay contains grains of the more stable minerals of the parent rock, especially quartz and micas and these deposits show a transition from clay through partially altered to fresh rock on passing downward. They are often formed by weathering under normal temperatures. This primary clay can restrain high temperature while entailing its colour. It is composed of silica, aluminia and water, chemically known as Alumino-silicie Acid. The Kaoline or China clay is said to have been prepared out of this primary clay. As for the secondary clay, it is the resultant of having been carried by agencies such as water farther from its source and carried impurities on the often long journey to their final sedimentary beds. In other words if the clay is carried away by water, those materials in which were of small grain size kept in suspension they are jostled, tossed and crunched enroute until the speed of the water is reduced. They are then deposited and formed beds of material consisting of exceedingly small particles of clay and other materials. These particles are reduced on the way to very much small grain sizes. The heavier and larger stones are already dropped up stream and the clays collected in this way are called secondary clays and if they are very pure and white "secondary kaolin". Almost all the clay of the ancient pottery was out of secondary clay and the Gangetic basin has been one of the fertile sources for such clay.

## SELECTION OF THE CLAY :

Nearly all clays are the products of decomposition. They are composed of mica, quartz and feldspar of which feldspar is subjected to decomposition. Potter is cautious in the selection of the clay. The clays are not brought from every place. He brings it from a particular place, studies the substance and its organism and uses it. He confines to only such clay with which he is well versed.

## PREPARATION OF THE PASTE :

Potter's clay is bettered by ageing or '*weathering.*' The clay is spread and exposed to sun, rain, wind and frost. The sun and wind dries and soakes through. This is allowed to be like that for a few months. This process is also called the degenerating process. When the clay is devoid of impurity, it is moistioned with lime water and mixed by hand, foot or pugmill to the right consistency of throwing. This stage of clay is known to be '*green hard stage* 'or' *leather hard stage*'. It is the stage of the clay body or paste when it becomes firm but not dry.[6] A vessel in the leather-hard state can be handled without risk of deformation carved or incised without clipping. They mix degraissants or tempering materials such as silica, sand or grit, husk, mica and lime to the clay to bring it to the greenhard stage, the stage when the clay is fit for throwing on the wheel. In Japan this process is done by "kneading" by foot. In this case slow pressure of man's heel acts rhythmically in a rotary movement as he steadies himself with a hand on a beam overhead. This process of kneading brings the flat particles of clay close together. Its plasticity is increased by mixing degraissants and rendered fit for throwing on the wheel.

*Kneading by Hand* :

The Japanese knead their clay by a two handed rotary movement with the weight of the shoulder coming down rhythmically on the right wrist. Considerable quantity of clay is handled at a time and the clay is turned slowly clockwise mainly by the left hand, the right hand taking a fresh hold after each pressure of release. This effect is to move the clay on the outside towards the centre of the mass when it works out slowly to the circumference again. A hundred or hundred and eighty turns about five minutes are sufficient to squeeze out all the air and thereby tempering the clay. For this is added tempering material and made ready for throwing.[7]

*Pug Mills* :

Pug mills are of either horizontal or vertical type. The vertical pug mill contains a hallow cylinder which is either tapered at its base or provided with a horizontal outlet. In this cylinder, revolves a vertical shaft provided with knives at different height. The material is introduced at the top and moves downwards owing to its own weight. It is simultaneously compressed by the rotating knives, which vary in shape from flat to curved. Horizontal pug mills employ the same principle. Since, however the clay does not gravite towards the outlet, it tends to turn with knives unless counter knives are arranged to prevent this movement.[8]

The fabric of the clay varies from fine to coarse or coarser. If the degraissants are used sparingly in the clay, then the fabric is fine. In this case the section would be normally thin and the clay would be uniformly distributed. In the case of the usage of the moderate degraissants the fabric will be medium. If the tempering material is profusely used then the fabric will be coarse or coarser. However it may be remembered that the quality of the fabric depends not only on the quality of the clay and other ingredients of the raw paste but also on the firing process.

*Throwing or Turning* :

After the paste is prepared to from the clay it is thrown or turned on the wheel. This method 'Thrownig' comprises of shaping a mass of sprinning clay between the thumbs, fingers and palms of the hands. This thrower would place a lump of Plastic clay on the wheel head and then sets the head in motion. He then gradually works the soft clay between his fingres, thumbs and palms to form the desired shapes of the object. The wheel[9] (Figures IX & X is rotated or revolved on a hub by means of a rod swiftly or slowly as he desires. This art of 'Throwing' was the oldest shaping methods in the preparation of ancient ceramics.

## *Hand made Pottery* :

The hand made pottery and the wheel made pottery have to be distinguished. The hand made pottery can be readily distinguishable from the outward appearance. The thumb impression on the pottery can be seen apparently in preceptible asymmetry, and the section will not be uniform. The surface of the pot will be irregular as the distribution of the clay in the case of hand made pottery is uneven. The thumb impressions, the irregular section and the shape of the pot to an extent reveal that the vessel is a hand-made one.

## *Wheel made Pottery* :

The potters wheel is known to have existed in Egypt, Babylonia, Persia and Greece from very remote past. In Egypt, it is believed, the potter's wheel was known to have existed from the commencement of the recorded history say about 2,500 B.C. However, it may be understood that it had its origin somewhere in the near east. In the case of wheel made pottery the striation marks are visible. These are the marks caused on the spot when it is rotated on the wheel. In the case of fast wheel, striation marks are parallel, uniform, horizontal unlike the slow wheel, where it is irregular.

## *Moulded Pottery* :

The mould of a required design is prepared and then the pottery is shaped as desired. At times the body of the vessel is wheel turned, while its base or its accessories such as spout and handle are fashioned in mould and luted. The moulds are generally wooden. After

Sung period majority of the pottery was made out of mould. The Gupta Age pottery seems to be all moulded.

### B. SURFACE TREATMENT

The surface treatment to the pot is made in the 'green hard stage 'or' the leather hard stage.' At this stage the paste is dried and hardened and fit to receive coating.

*Slip* :

It is a clayee substance coated on the body of the pot. It is a diluted liquid applied to the surface of the pot when it is on the wheel. Slip in other words, is a fluid made by mixing dry clay and water in equal proportion to the consistency of cream. Slip gets into the core of the pot and forms almost a sort of layer which could easily be perceived in the section. Slipped pottery is previous. Surfaces that are smooth, textured and of identical colour to the body are sometimes designated as "self slipped"[10] on the assumption that the slip is prepared from the same clay as the body. However, unless the body exhibits a textural differences owing to temper such a coat cannot be detected except in the section.

*Reserved Slip* :

After the slip is applied to the pot certain portions of the slip on the pot will be removed by means of a bamboo slit or reed while rotating on the wheel. This makes the slip reserve to only certain places. Hence the reserved slip.

*Burnishing slip* :

This process is done with a smooth surfaced wooden object. It is rubbed on the pot while rotating on the wheel as a result of which a burnishing smooth surface over the pot will be formed. At times the burnishing strokes of the wooden surface are also seen vividly on the exterior portion of the pot. Then the slip is applied to make it a burnishing slip.

*Wash* :

It is applied with a hand or brush. It never conceals the body of the pot or gets into the core of the pot as in the case of slip. It is almost transparent and can be differentiated by its irregular movement when it is made by a brush particularly.

### *Glaze* :

Glazes are vitreous (glossy) coatings used to conceal the ceramic body. It is composed of certain colour agent and when they are fired in the kiln they give glaze appearance. The essential element in glaze is fluxing agent, the substance be it lead, borax, soda, salt, lime stone or manganese. As such glaze forms a separate thin layer over the pot. When the glaze become soft in the glost fire they combine with the body material with which they are in contact. An intermediate layer is thus formed between the glaze and the body surface, uniting and welding them firmly together. The thermal expansion of the glaze and the body of the pot should be the same. If the thermal expansion of the glaze is larger it results into innumerable fine fissures. This is called 'crazing'. If on the contrary, the body has a larger expansion than the glaze, consequently contracted more during cooling, the surface area of the body turns smaller than the area of the glaze of the skin. As such, there will be no adequate space on the surface of the ceramic article for the glaze and the body into perfect agreement it is necessary to know the thermal expansion of the both. The glaze and the body are to be well matched and cooled. It can be achieved with the glazes which have similar composition to that of the body. It may follow that the hard glazes (glazes having a high softening temperature) are as a rule, fit better to the body than soft glazes[11]. In the hard porcelain manufactures both glaze and body are fired at the same temperature in the same fire. For this reason an extremely good glaze can be obtained.

### *Coloured Glazes* :

They are obtained by adding colouring oxides. Such oxides are dissolved in the glaze. The same oxides may give different colours with different glazes. Chrome oxides for example as a rule gives brilliant green colour. If however, zinc oxides is present the colour is brown. If no oxides is present but larger amount of tin oxide, the colour would be pink. The same metal may also have given different colours when fired under different conditions. Coloured glazes are generally applied by dipping, pouring, splashing, trailing and painting. There are two kinds of glazes, viz., under glaze colour and on-glaze colour. In the case of under glaze decoration the colours and the glaze are fired directly together. In the case of on-glaze decoration they are fired together with the aid of a softy flux. The under glaze colours are applied to the 'bisque' (ware which had already undergone firing) and the glaze is applied subsequently by dipping or spraying and is then fired in the glost oven. In the case of a glaze colour it is applied on the glazes.

*Salt Glaze*[12] :

It is produced by throwing salt into the fire mouth in the latter stages of firing. For example the stone ware is salt glazed. Glazing of a stone ware is usually achieved by throwing common salt (*sodium chloride*) or borax (*sodīum bi-borate*) into the kiln when the firing is approaching its final stage. The crackling or glazing is due to salt glazing. It is in fact the result of the greater shrinkage in glaze than in the body either during cooling or subsequently. After the slip is applied to the pot wet salt is added. When it is fired in the kiln salt melts away leaving a crazy appearance. Then the pot is said to be salt glazed. But not as a rule, all the crazy appearing pots are salt glazed. For at times due to the thermal expansion or contraction of the body of the pot the slip gives crazy or crackling appearance. Then we cannot say it is salt glazed. In the case of glazed pottery the shining would be greater.

*Wet-Smoothing*[13] :

When the pot is on the wheel this wetsmoothing is given.

## *C. Firing*

Firing of the pots could have been done in two ways either in open kiln or in closed kiln. These kilns are the chamber fed with flames in different conditions. Exceptionally the sagger firing appears to have been done in the closed kiln.

## KILN

| 1 | 2 |
|---|---|
| 1. Oxidizing condition | 1. Sagger firing |
| 2. Reducing condition | |
| 3. Inverted firing | |
| 4. Straight firing | |

In the open kiln pots meant for firing are piled one upon another covering them with cumbustible materials like husk, straw and dung cakes. The are set fire and the flames are allowed to come into contact with the pots directly. In the open kiln firings should have been effected under oxidizing or reducing condition or under inverted or straight firing technique.

### *Oxidizing condition of the Kiln* :

In oxidizing condition excess of oxygen is allowed into the kiln. The oxygen comes into contact with the pots and such pots turn red. All the ancient Red ware ceramic industry was subjected to this technique of firing. At times some dark patches are seen on the sherd. These are due to indifferent firing. The ill firing must have been due to uneven distribution of flames. Such portion of pots which has not come into contact with flames yield such kind of patches. Rate of oxidation depend on the proportion of oxygen, temperature, dierrity of the day and properties of the material oxidized.[14]

### *Reducing Condition of the Kiln* :

In this process pots are fired in such a way that they do not come into contact with the flames directly. In the kiln no oxygen is allowed. In this case pots turn either black or grey depending upon the temperature controlled. All the Black slipped ware, all Black ware and grey ware of the ancient times were the resultants of this kind of firing.

*Inverted Firing*:

This process of firing could have been effected under the oxidizing condition of the kiln. The process of firing may be visualised as follows. There would have been an open platform with slots provided as shown in the sketch (*Figure XI*) at equal distances. The number and rows of slots or grooves depend upon the area of the platform. Beneath, entrances are furnished through which flames are fed. The pots are kept inserted in these grooves upside down, in such a way that the rim goes into the groove with the rest of the portion exposed. The flames are fed out, inside and alround. The interior portion of the pot is always filled or pasted with combustible material. When these pots come into contact with the flames, the exterior portion of the pot that is exposed namely neck, shoulder, profile and base turn red and the rim portion since it is concealed in the groove turns blank due to its indirect contact with the flames. As a rule all the interior portion turns back due to its concealment with the combustible material.

As such certain portion of the pots become red and the remaining black. Hence they are called black and red ware. Since the pots are kept topsy turvey or upside down and then fired, the technique of firing is termed as inverted firing technique. However the technique of firing here explained is suggestive. This industry of black and red ware has also undergone another kind of firing, known as 'straight firing'. In this case the pots are kept straight as they are, instead of topsy turveying them as found in the inverted firing technique. In straight firing the pots are kept straight, as such the base portion gets inserted in the slot while the rest of the pot is exposed. As usual the interior portion is filled with cumbustible material. When they are fired the base portion turns black since it is concealed and the rest turns red while the interior portion is always black. Here also black and red effect is given as found in the inverted firing technique. But the way of putting the pots is different. Since they are fired straight away the technique of firing can be termed as 'straight firing'.

### *Saggar Firing* :

This appears to have been executed in a closed kiln. The pots are placed in rectangular wooden boxes and kept in different levels untouched or detached. The kiln is closed on all sides save on one side by which way the heat is sent beneath the wooden boxes. The heat is uniform and in all probability fuel appears to have not been used in this case. As such the pots that undergone this technique of saggar firing are uniformly burnt and obsolutely there are no indifferent firings. It is presumed that the modern crockery and such pottery which has uniform firing is subjected to this saggar firing. In all probability the Northern black polished ware seemed to have undergone the technique of saggar firing as it betrays uniformly burnt surface. It is a matter of controversy and needs confirmation.

## *D. DECORATION*

The pottery lends great latitude in decoration. The yielding paste of the vessel gives itself to a variety of manipulative technique such as incising, *applique* stamping, moulding, painting etc. These produce decorative effects through texturing and relief. The leather hard or even the fired vessels with a soft body can be scraped, grooved and carved with a strong sharp tool. The surface of the vessel gives the potter a free hand in painting.

### *Incession* :

Incessions on the pots are done by means of a pointed pin or rod either before or after firing. If the incession is made prefiring or at the stage when the clay is plastic, a slightly raised edge or burried edge can be perceived. On the other hand if the incession is done post firing, the distinct disturbance of the slip on the surface is visible. In executing the multiway incessions perhaps multipronged tool should have been used to draw them all at one time.

### *Applique* :

It is effected at the green hard stage. A separate band or strip of clay is applied around the body or neck or shoulder of the pot and on it finger tipped or nail tipped impression is caused. Since the clay is applied separately to the pot it is termed as applique. In this case the nondisturbance of the surface of the pot is seen even when the applique is disturbed.

*Stamping* :

They are caused prefiring. The stamps are imprinted into the body of the pot and the designs could be seen in the relief.

*Moulding* :

Decorations caused by means of moulds can be seen on the relief unlike the stamped one. The luting of the moulded designs to the body of the pots are often effected.

*Painting* :

Hand painting is the oldest method of decorating the pottery. The painter uses the brushes and applies the ceramic colour to the ware. Hand painting with ceramic colours require great skill and practice. The paints have the tendency to change their colour during the firing and hence the painter should have in view this point also. Lines or bands (thick lines) in painting are made by means of a brush held at a slightly oblique angle to the article while it is revolving on the wheel. If multibands or lines of painting are to be caused number of brushes held together effected the design. To give mullibands or wavy lines this multibrush technique appears to have been used. The painted designs on the porcelain ware are caused by means of 'Transfer Method'.

## *E. FORMS (FIGURES XII & XIII)*

In describing the pottery most prominently visible forms should be emphasised. As the human body can be divided into head, neck, shoulder, body and foot, the pottery can also be divided into rim, neck, shoulder body or profile and base or foot. The forms of the pottery afford an adequate basis for detailed classification of the ceramic industries. It has been rightly pointed out that form is the most essential feature as it is directly dependent on the use which is to made of the vessel and which is the reason for its existence.[15]

1. *Rims* (*Figure XII*) :

The rims of the pottery types are varied and may conveniently be classified as under in view point of their standardisation and comprehension. They include inverted rim (Fig. XII, 1). Here the pinching is very little. Its opposite is in-verted rim; out curved rim (Fig. XII, 2) or incurved rim. In this case curvature of the rim is apparent; out-turned rim (Fig. XII, 3) or in-turned rim. Here the angle formation of the rim is vivid; bevelled rim (Fig. XII 4); chamfering rim (Fig. XII, 5); clubbed rim (Fig. XII. 6); beaked rim (Fig. XII, 7); collared rim around (Fig. XII, 8); (b) Oval (Fig. XII,9); (c) Eilliptical (Fig. XII, 10); featureless rim (Fig. XII. 11); sharpened rim (Fig. XII, 12); square cut rim (Fig. XII, 13); nail headed rim (Fig. XII, 14); splayed out rim (Fig. XII, 15); horizontally splayed out rim (Fig. XII, 16); flaring rim (Fig. XII, 17); drooping rim (Fig. XII, 18); externally (Fig. XII, 19) or internally thickened rim: but shaped rim (Fig. XII, 20); rebated rim (Fig. XII, 21) and cordoned rim (Fig. XII, 22).

2. *Necks* (*Figures XII and XIII*) :

Concave neck (Fig. XII, 23); carinated neck (Fig. XII, 24); vertical neck (Fig. XII, 25); high or short neck.

3. *Shoulders Figures XII and XIII* :

Oblique shoulder (Fig. XII, 26); high shoulder; concave shoulder (Fig. XII, 27); convex shoulder (Fig. XII 28); corrugated shoulder (Fig. XII, 29); square shoulder (Fig. XIII, 30).

4. *Body or Profile* (*Figure XIII*) :

Round (Fig. XIII, 31); Globular (Fig. XIII, 32): oval (Fig. XIII, 33); cylindrical (Fig. XIII, 34); pear shaped (Fig. XIII, 35); carinated (Fig. XIII, 36) and conical (Fig. XIII, 37).

5. *Base* (*Figure XIII*) :

Flat Fig. XIII, 38); round (Fig. XIII, 39); disc (Fig. XIII, 40); ring (Fig. XIII, 41); rim (Fig. XIII, 42); pedestal (Fig. XIII, 43); pointed (Fig. XIII, 44); foot (Fig. XIII, 45); button (Fig. XIII, 46); convex (Fig. XIII, 47); and saggar (Fig, XIII, 48).

Thus the technical aspect of the Indian pottery can be visualised from the aforesaid account and this may give large insight in construing the ancient technique of pottery preparation.

## REFERENCES

1. The word ceramic is derived from the Greek; the Grecian pottery being called *Kerameus*.
2. *Knowledge*, Volume 6. Chapter on Ceramics, p. 1126
3. The word clay comes from an English word '*Claeg*', Dutch and German *Klei*, from '*Kli*' to stick to 'in German' *Kleben*. Clay is a product of the decom' position of the mineral feldspar; Feldspar comes from the German feldspar; feld meaning 'Field and spat 'a spar'.
4. A.O. Shepard, *Ceramics to Archaeologists*. p. 6
5. *Ibid.*, p. 8
6. A.O. Shepard, *Ceramics to Archaeologist*
7. Bernard Leech, *Potter book*, (London, 1944) p. 51 ff.
8. Ernst Rosenthal, *Pottery and Ceramics*, (London, 1954) p. 85
9. *Figure IX*—Pottery wheel from Kalibanga a village in Sriganganagar district, Rajasthan. I am very much thankful to Shri S.K. Jagtap, who has prepared the sketch of the potter's wheel locally current in village. *Figures X*— Potter's wheel presently prevalent in Andhra Pradesh. I am also thankful to Shri U. Sreeramulu for his sketch.
10. A.O. Shepard, *Ceramics to archaeologist* p; 192
11. Ernst Rosenthal, *Pottery and Ceramics*, p. 139
12. Vide Article of 'Bisque Firing' by A, Dinsale and Marcus Francis in transactions of the British Ceramic Society, Jan. 1945; See also Chapter on glazing in 'Pottery making' by York Honre and *Ancient India*, Vol, II, p. 93. In the process of firing, when the fuel has almost burnt out in the kiln and the pots are still red hot, wet salt is thrown into the kiln. Under the intense heat the salt volatizes and by reacting chemically on the surface of the pots, produces the glaze.

13. P. Delongaz, *Pottery from the Diyala Region*, p. 33. According to him the process of wet smoothing is done 'by smoothing the surface of finished vessel by hand or with a wet cloth. As a result the surface appear to be of finer grain than the biscuit and the effect 'a-self' slip is often indistinguishable from a real thin slip. In this connection it is note worthy that some so called reserve slip, 'wares seems to have had no real slip but that the characteristic decorative effect is due merely to the scraping of the wet-smoothed surface so as to expose at intervals the rougher texture of the biscuit.

14. A.O. Shepard—*Ceramics to Archaeologist*.

15. Frankfort—*Studies* 1, 12; also seen P. Delongaz, Pottery *from the Diyala region* the University of Chicago; Oriental Institute Publications, vol. LXIII

# 14

# POTTERY IN LITERATURE

The study of the technical aspects of the pottery[1] is all the more important and indispensable for comprehending the historical aspects of any pottery. The early Indian literature makes references to the technique of pottery-making at several places. In this paper an attempt has been made to visualise a few of these aspects of the Indian ceramics, as gleaned from the literature. While studying this, the following subdivisions render necessary :—

*Pottery* :

A. Fabric
B. Surface treatment
C. Firing
D. Decoration
E. Forms

*Potter* :

The literary reference to a potter occurs as early as in the *Śatarudriya* in the *Yajurveda*. It speaks of a word Kulāla, which means a potter. In later Saṁhitas and Upaniṣhads also this word Kulāla stands to mean a hereditary potter[2]. We also find another word mṛt-paca (potter) in the literature. Pāṇiṇi refers to Kulāla and Kaulaka which mean potter and pottery respectively.[3]

In Jain literature[4], the potter is called *Bhandara* or *Bhandakara*. The Jain texts, in fact, refer to several potter shops. Saddāla putta was a renowed potter[5] of Polāsapura owing five hundred shops. The potter's shop had five apartments (sālas) i.e. *Paṇi yasālā*, *Bhāṇḍasālā*

*Kammasālā*, *Pacanasālā* and *indhanasālā*. In *Paṇiyasālā*, the potter sold the pottery; in Bhandasala, the vessels were kept in safety; in Kamma sala, the vessels were moulded; in *Pacanasālā*, they were baked and in *indhanasālā*, the fuel such as grass, dung etc., was stored[6]. The potters generally lived at the outskirits of the villages and sold their wares in bazar. Patañjali in his Mahābhāsya accords ample information regarding potter. He speaks of the skilled potters known as *Mahākumbhakāras*.[7]

## A. FABRIC

### *Clay and preparation of the paste :*

The potter's prime need is good clay. In fact, upon the quality of clay depends the strength of the pot and hence, the potter is very careful in the selection of the clay. The Vedic literature refers to the words *mrd* or *mṛiṭṭika* which means clay, The pots made of clay are known as *mṛnmayīpātra or mṛt-pātrā*[8].

The *Śatapatha Brāhmaṇa*,[9] while speaking about the pot called *Nahavirapatra*, incidentally throws light on the technique of the manufacture of this vessel. The clay of this pot was mixed with water and it was again mixed with soft soil of ant-hil. (*Valmīka vapva*).

### *Ageing or Weathering :*

Potter's clay is bettered by ageing or weathering. This process is also called degenerating process.[10] When the clay is devoid of impurity, it is moistened with lime water mixed by hand, foot or pug-mill to the right consistency of throwing. This stage of clay is known as '*green hard stage* or *leather hard stage*'. It is the stage when the clay is fit for throwing on the wheel.[11] Sometimes tempering materials or degraissants are mixed to bring the clay to the right consistency. According to the *Śathapatha Brāhmaṇa*,[12] goat hair (*ajāloma*) and powder of three kinds (gravel, grit and iron) are added to the clay to act as a tempering material. The *Taittirīya Saṁhita*[13] asserts that the clay should be mixed with pottery pieces of the ancient sites *armaka-pālā*), sand (*sarkarā*) and hairs (*ajāloma*) and hair of black buck (*Krishṇajinaloma*).

## THROWING OR TURNING

After the paste is prepared to form the clay, it is thrown or turned on the wheel[14]. This art of throwing was the oldest of the shaping methods in the preparation of the ancient ceramics. In the Jaina literature information regarding the technique of manufacture of pottery vessel is available. After the preparation of the clay[15], lumps of clay (*mattiya*) was placed on the wheel (*cakka-cakra*) and by rotating the wheel, vessels of various shapes were produced.

Similar description of the technique of manufacture of the pots occurs also in the Jātakas. The Jātakas inform that lumps of clay (*mattika*) were kneaded with water and then mixed with ashes and dung (*go-maya*). This mixture was then rotated on the wheel (*cakka*) which was constantly turned *avithi* and various vessels were shaped. The wet vessels were then dried and baked (*sukkhapetva : pacitva*) and made ready for consumption[16].

Still in later literature, elsewhere from *Bhojaprabhandha*, interestingly the idea of the pottery-making of the clay can be culled. The verse runs as under :

> KEDĀREṆA VIDĀDITA PASUPATHI PASCHĀTHKHARĀROHAṆAM !
> TATPĀPISHTA KULĀLA PĀDAHANANAM DAṆḌENA CHAKRĀMYAHAN !!
> RAJUĀCHEDANATĀDANAM CHA DAHANAM SOḌUM MAYĀ ŚĀNTAYĀ !
> GRĀMYASTRĪ KARATAṆKANAM BAHUKRUTHAM TANME API DUKHAM MAHAT !

This was a complaint of a pot (poetic fancy) to the king Bhoja, in his court, seeking justice from him (Bhoja). The meaning of the verse is as under :

"Potter digs me (clay) with his axe and makes me ride over an ass; then the wretched potter kneads me mercilessly with his feet and rotates me on the wheel with a stick; he cuts me with a string; he beats me (pats for distribution of clay) and bakes (puts in the kiln) -all these I (pot) bear with patience; further the village lasses tap me with their fingers (to test my quality) innumerably, which I can no longer bear." This incidentally gives us the process of pottery-making known to period of Bhoja.

## SHAPING OF THE VESSELS :

### (a) *Handmade pottery* :

The *Śatapatha Brāhmaṇa* is clear about this. In the preparation of handmade pots, a portion of the prepared clay was taken and beaten to flat base.[17] The other lumps of clay were similarly beaten to raise its (pot's) sides. The bottom of such pots was called nidni while the process of the rising sides is termed as *pūrvodohi* uttarodohi[18] etc.

### (b) *Moulded pottery* :

The mould of a required design is prepared and then the pottery is shaped. Sometimes, the body of the vessel is wheel-turned while its base or accessories such as spouts and handles are fashioned in mould and luted. Patañjali[19] in his *Mahābhāsya* refers to such moulded pottery.

## B. SURFACE TREATMENT

The surface treatment to the pot is made in the green hard stage. At this stage, paste is dried and hardened and fit to receive coating.[20]

*Slip* : It is a fluid made by mixing dry clay and water in equal proportion to the consistency of cream. The slip is applied to the surface of the pot when it is on the wheel. If the slip is prepared from the same clay as the body of the pot, it is called self-slip. The jain literature informs the method of surface treatment to the vessels, known to the period. When the pot is on the wheel, a thin coat of fine liquid clay is applied to the pot in order to give a smoothing surface to the pot. The pot, in which fine liquid is generally kept, is known as *Ayamanchiya* (*Atanchika*).[21]

### *Wet-Smoothing* :

Sometimes pots are coated with seasame oil mixed with ash. It is rubbed with wet cotton on the fired pot. Then the pot is rubbed with a polishing stone known as *Ghuttaka*.[22]

The pot is dried by keeping it in sun. Then the ash is washed. This process is continueed for two to five times. Thus probably the pot gets, what is known in the modern terminology, 'wet-smoothing', as its surface treatment. Delongaz, while speaking about the surface treatment to the pots, defines the wet-smoothing process as that which is done by smoothing the surface of finished vessel by hand or with a wet-cloth.[23]

## C. FIRING

Firing of the pots could have been done in two ways whether in open kiln or in closed kiln. These kilns were the chambers fed with flames in different conditions. In the open kiln pots meant for firing were piled one upon another, covering them with cumbustible materials like husk, straw and dung-cakes. They were set fire and the flames were allowed to come into contact with the pots directly. In the open kiln, firing should have been effected under oxidizing or reducing condition or under inverted or straight or double firing technique. The *Śatapatha Brāhmaṇa* speaks of fire-pits (*kūpa*), where the pots were fired. The process of pilling the pots in the fire-pit was known as avadhana. After the pots were fired, they were taken out (*udyachchhana*) and kept aside (*Nidadhana*).[24]

### *Inverted Firing* :

The Athara Veda[25] speaks of baked pottery which turned to blue and red (*Neel-Lohita*). It is quite probable that the pottery could have been subjected to the inverted firing technique.[26]

## D. DECORATION

The pottery lends great latitude in decoration. The leather hard or even the fired vessels with a soft body can be scraped, grooved, and carved with a strong sharp tool.

*Painting* : The surface of the vessel gives the potter a free hand in painting. As early as in *Śraut Sūtras*[27] a reference to painted pottery is made. It is pointed out that a Soma vessel (*Ajagava*) had the paintings of the udder of goats (*Ajasthanam chinham Ithvah*). This vessel had an elongated spout through which *Soma* was poured into the fire.

The Jain literature copiously refers to paintings on pottery. The colour which was intended for decoration on pottery was generally kept in a pot called *Kalada.*[28] In Jātaka period, the skill of the potter exhibited in the preparation of the pots which were coloured and decorated with motifs. (*Nanarupani* (*Samutthapesi*).[29]

## E. FORMS

The forms or shapes divulged in an ancient literature are varied and redundant.

### *Conclusion* :

Thus, the study of the ancient literature visualises the technical aspect of the ancient Indian ceramics. It can be seen that the corroboration of the literary data with the archaeological evidence warrant the chemical analysis of the pottery unearthed from the various ancient sites. Such scientific study is bound to throw more light for comprehending this aspect of pottery (namely the technical aspect), in more detail.

## REFERENCES

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2. *Maitrayāni Saṁhitā* and *Kāṭhaka Saṁhitā*, 1, 8, 3.
3. *Asṭādhyāyī*, IV, 3, 118.
4. Deo. S. B. Pots and Utensils from Jain Literature, '*BDCRI*', Vol. 14, No. I, pp. 38-39.
5. Halahala was another rich potter-women of Sravaste in whose shop Gosala stayed (*Bhagavati*, 15).
6. *Nisīthi Cūrni*, 15 p., 1058, *Bṛh. Bhā.*, 2., 344
7. *Mahābhāsya*, p. 167
8. *Mṛt*. denotes clay; *mṛt-pātra* means clay vessel; *mṛn-mayi* means vessels made of clay.
9. *Śathapatha Brāhmaṇa.* 14.1.2.17; M.S. Pandey, Potteries in the Brahmanical Literature (upto 2nd c. B.C.)—*Potteries in Ancient India*, p. 157

10. Krishna Murthy, *op. cit.*, p. 32
11. It is the stage of clay body or paste when it becomes firm but not dry (A.O. Shepard—*Ceramics to Archaeologist*, p. 6).
12. *Śathapatha Brāhmaṇa*, VI., 5., 1.4.
13. *Taittirīya Saṁhitā*, IV., 1
14. Krishnamurthy, *op. cit.*, p. 33
15. Clay (*mattiya*) was kneaded with water and mixed with ashes (*chara*) and dung (*karisa*). See Deo, *op. cit.*, p. 37
16. *J*-V.P. 291; See for similar description *Uvāsagaḍasāo*, p. 115 f.
17. *Śathapatha Brāhmaṇa*, IV., 5.2.4.5.
18. *Ibid.*, VI. 5.3, 8.9
19. *Mahābhāsya*, p., 164. The skilled potters called *Mahākumbhakāras* moulded big jars.
20. Krishna Murthy, *OP. cit.*, p. 34
21. Deo., *op. cit.*, p. 37
22. *Ibid.*, p. 35
23. Delougaz, P., *Pottery from the Diyala Region*, (The University of Chicago, Oriental Institute Publications), Vol. LXIII, p. 33
24. *Śatapatha Brāhmaṇa*, VI., 5.4, 15.16
25. *A.V.*, 14, 1, 2, 17.
26. *Potteries in Ancient India*, (Patna, 1969). pp. 305.306
27. *Āp. Śrauta Sūtra*, XII, 11, 11.
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# 15

# RATTA ADMINISTRATION

The Rattas of Saundatti and Belgaum (A.D. 850-1250) who rose to prominance in the wake of the decline of Rashṭrakūtas placed a significant role in the politics of the medieval period of the Deccan. They began their career firstly as the feudatories of the Rashṭrakūtas (during the period A.D. 875-973), later of the Western Chalukyas (A.D. 973-1170) and thereafter became independent rulers till they were finally extirpated by the Yādavas of Devagiri in 1250 A.D.[1] Thus over a period of three centuries and a half this dynasty ruled 'Kundi 3000' with the capitals firstly at Sugandhavarti,[2] the modern Saundatti and later in A.D. 1210 at Velugrama[3] or the modern Belgaum. The government of Kundi or 'Kundi 3000' province, a division of the Kuntala country included a vast portion of the Belgaum district and the South western part of the Kaladgi district[4].

Innumerable inscriptions of the Ratta chieftains discovered at the aforesaid capitals and at watnal, Sogal, Mutwad, Nesargi, Konnuru, Kalhole and Boj, in the Belgaum district, at Khanpur and Raybag in the Kolhapur district and at Lokapur on the high road between Belgaum and Kaladgi throw flood of light on the system of government under the Rattas. In the foregoing pages an attempt has been made to make a comprehensive survey of the lithic records of these rulers.

*General Administration :*

The Mahāmaṇḍaleśvara Rattas while conceding the authority of the paramount sovereign, enjoyed such independence that they even oft omitted to mention their supreme master in their lithic records. They had their own family ensigns and emblems and attained the honour of the Pañca Mahāsabda a special distinction to persons of high rank and authority. They were heralded by the sound of *trivali-turya nirghoṣaṇa.*[5] They were entitled to carry the banner of golden Garuda (*suvarṇagarudadhvaja*). A copper-plate grant of the Rattas contains on its seal a Garuda figure.[6] They used the mark of red-lead or Vermilion (*Sindura lañchana*). They had the title of *Lattalurpurvar-adhisvara* or *Lattanur-purvaradhisvara*, the supreme lord of *Lattalur* or *Lattanur*.[7] It is also told that the Ratta king Eraga had the title 'Ratta Narāyaṇa, Ratta Martunda and Singana Garuda.[8]

Generally the term Mahāmaṇḍaleśvar was applied to great heriditary chiefs who ruled their domain as monarchs. The Mahāmaṇḍaleśvara Sindas, Rattas, Gattas and Pāṇdyas were all equal to one another so far as their relations with paramount sovereigns were concerned. The Rattas continued to bear the title of Mahāmaṇdaleśvara but at the same time their inscriptions do not acknowledge supremacy of any other dynasty over them. The Belgaum inscription and others expressely state that Kārtavirya IV and Mallikārjuna enjoyed Sāmrājya or paramount sovereignty and Kārtavīrya is even mentioned as Chakravarti or universal emperor in the inscription in the temple of Tatesvaradeva at Konnur. Though these expressions smack of exaggeration yet they indicate plainly enough the position, the Rattas really held.

*Territorial Division*:

The empire was divided into innumerable divisions for administrative convenience. The interesting feature of these divisions was that figures were attached to each name denoting the division. Thus the Nesargi 6, the Saundatti 12, the Huble 12, the Banihalli 18, the Venugrama or Belgaum 70, the Belvola 3000, the Kundi 3000, the Palasige or Halsi 12000, Banavasi 12000 etc. occur in the inscriptions. Scholars have expressed different views regarding the interpretation of these numerical figures. Rice is of opinion that these figures have revenue value denoting the niskas[9]. According to Imperial Gazetteer these numbers have revenue capacity and they indicate the number of districts or nadus.[10] Dr. Krishnaswamy Ayyangar puts forth another theory stating that the figures attached to each name denote either the revenue paid or the value of the produce.[11] But Dr. Fleet interprets them as the number of townships in the division[12]. Mr. Rice's theory that they indicate niskas seems to be untenable as the taxes were usually not collected in cash. Dr. Krishnaswamy Ayyangar's theory also does not hold good as the quantity of the produce should vary with the different kinds of corn and all provinces cannot have the same produce. As such Dr. Fleet's argument seems to be more reasonable. It might be that the major divisions like Belvota 3000, Kundi 3000, Banavasi 12000 were subdivided into smaller units like Nesargi 6, the Saundatti 12, the Hubli 12, the Banihalli 18, Venugrama or Belgaum 70 etc.*

*Kingship* :

In Ratta administration the king was the absolute head of the state in theory. In that capacity he had to defend the country in times of war leading the army to the battle fields. The Mantur inscription extols the Ratta king Eraga as one "who protects the country".[13] The qualities of a typical king have been well represented in the Ratta king Sena.[14] It is said that he was a "resplendent being possessing an army that was terrible by reason of its valour, ever enjoying the embraces of the goddess of knowledge, beloved husband of the lovely-woman Authority, possessing a large court, shining with a lusture like a Sun, very generous, very haughty, the leader of the forces in the battle field...... and the friend of learned men." He protected those who sought his help in times of need and distress. As a just ruler he punished the wicked and the vicious. The three powers namely majesty, tenacity and counsel and six gunas such as sapience, creative energy, power, all sufficiency, might and glory, the essential prerequisities of an ideal king[15] were found in the Ratta kings. The Manasollasa speaking about the duties and responsibilities of a king inform us that the king with his honesty, fortitude, youth, alacrity, ability etc., should prove his worth and incur the implicit confidence of his subjects. He should be compassionate and just and should work for the welfare of his subjects.[16]

The King used to take counsels tendered by his poets in times of need. The tremendous influence that the religious preceptors wielded over the kings could be seen from the Ratta inscriptions. The royal spiritual preceptor Municandradeva who mastered the treatise on the use of weapons was the trust-worthy instructor of Lakṣmīdeva.[17] The King Laskṣmīdeva by his virtues and valour became the anointer of the other kings. Municandradeva surpassed all others in administrative ability.[13] The other preceptors like Mullabhattaraka, Gunakīrti, Indra-Kīrtiśvāmi, Kanakaprabhāvadeva and others also had great influence over the Ratta rulers.[19]

*The Capital and the Court* :

The royal city was a place of pomp, splendour and magnificience. Lofty buildings and parks with variety of shurbs and trees adorned the city. It was "large and resplendent having all the means of accomplishing pleasure"[20]. The capital city Sugandhavarti, as its name indicated, radiated sweet odours. In one of the Ratta inscriptions[21] the glory of the city of Venugrama under Kārtavirya IV has been described. "Resplendent with seventy villages, which delighted all mankind with the multitude of their perennial fruits, famous in the world as Surapura (the city of gods) and Bhogavati (the capital of Vasuki, the city of nagas), Venugrama, through the xc ellence of its merits became pleasing on account of all riches and enjoyments."

The Court of the Ratta kings was adorned by celebrated poets and scholars. These benevolent kings took delight in holding assemblies of them and by listening to many excellent new poems.[22] The Kannada poet Kamalāditya was patronised by Kārtavirya I.[23] The king Lakṣmīdeva has been described as a 'tree of desire to the multitudes of poets."[24] The two celebrated poets Karṇaparya and Nemicandra lived in his court.[25] The king Kārtavirya IV patronised two poets Bālacandra and Pārśva Paṇḍita. One of the Belgaum inscriptions extols him as an emperor of the four tongues and as "swan in the lotus wood of everlasting literature".[26]

*Yuvarāja* :

The advice of the smritis that an heir-aparent should be selected in the life time of the ruling king appears to have been followed by the Ratta kings. It was usual custom among them to nominate one of the younger brothers or sons of the king as Yuvarāja. This was necessarily done partly to relieve the burden of the king's duties and partly to make Yuvarāja to come in the know of the statecraft and to carry out the administration later without any difficulties. The Ratta king Kārtavirya IV was associated with his younger brother Yuvarāja Mallikārjuna.[27] The same fact is again asserted in the Belgaum inscription which says that Kārtavirya IV with his heir apparent prince Mallikārjuna was enjoying the delights of the empire in the camp of Vēnugrāma.[28]

*Minister* :

He was the most important Royal officer in the Ratta administration. Arthaśāstra (Book I, Chapter 3), Sāntiparva (Chapters 82, 83 and 85), *Kamaṇḍaka Nītisāra* (IV, 25-31), *Nītivākyāmrta* (X, 5) *Sukra* (II, 52-64), *Bārhaspatya Arthaśāstra* II, 42) etc., speak of the qualities of the minister.[29] Kamaṇḍaka and Somadeva affirm that the minister should be brave and Sōmadēva further adds that he should know the use of missiles. The ministers of the Ratta kings were no way lacking in the qualifications laid down in the ancient treatises. Bicana or Bijaraja, the prime minister of Kārtavirya IV was a unique crest-jewel of ministers. Vaijana was another distinguished minister of Kārtavirya IV. It is recorded of him that he could give details of the lore of statecraft to his lord in times of deliberations, and was a keen missile of victory on the field of battle and a minister of amusements in times of sports.[30] Thus minister was a right hand to the king in administration. Hence Somesvara affirms that the minister should have sound knowledge of politics and finance.[31]

*Different grades of officials* :

Mahāmandalēsvara or Mahāsāmanta inscriptions refer to the other officials like Dandanāyaka, commander of the forces and

Rājaguru or royal preceptor. There were other chief officials like Nāyak in charge of the circle of villages, villages gāunda or village headman with his council of traders. The mention of such long list of officials in the inscriptions reveals the highly systematised administrative machinary under Rattas. The selection of the officers was done on the basis of heredity and educational qualifications. One Appana father of Bicana and Vaijana was a scribe and was counted as foremost among scribes.[32] His eldest son Bicana is also mentioned as chief of scribes and a minister. This evidently shows that Bicana succeeded in this father's post. The knowledge of Politics was essential for every high official. A true minister was repository of the lore of state craft, says the Ratta inscription.[33]

### *Daṇḍanāyaka* :

Daṇḍanāyaka was the commander of the forces. The Ratta inscriptions refer to two such commanders namely Camanda Daṇḍanāyaka and Nimba.[34] Camanda was in charge of the Kundi provincial forces. This powerful commander in conjunction with the Ratta king Sena II rendered distinguished services to the Chālukyan emperor. It is said of him that he was "the favourite of the lovely woman, Great Fame, the staff in whose arm was the lovely woman, Victory and a very mace in dealing death in war".[35] Again Nimba was the general of the army under Kārtavirya IV.

### *Rājaguru or Royal preceptor* :

From the early times the rajaguru or royal preceptor was a notable figure in the administration of the country. He exercised enormous power and influence in the state and remained an important member of the ministry.[36] Along with his councillors he acted as minister under three officials.[37] One of the Ratta inscriptions[38] refers to such a royal preceptor Municandra, of the king Lakshmidēva II, who had two best councillors Sāntinatha and Mallikārjuna. The religious preceptor of Kannakaira II, Kanakaprabha Siddhāntadeva who was well versed in three vedas and all sacred literature was famous throughout the country.[39]

### *Village Assembly* :

The village was the unit of administration. Some villages were managed by village assemblies. The Ratta city Vēnugrāma had an assembly of as many as four thousand Mahājans.[40] The function of the village assembly was to maintain the public institutions like temples and to look after village tanks and irrigational works.

### *Gāvunda and Nāyak* :

The gavuṇḍa, gamuṇḍa or gauda was the village-headman.[41] His office was a hereditary one.[42] It may be noted that some villages had more than one headman.* This was necessitated in view of the vastness of the area and the many sided activities of the administration. The Nāyak was another official in charge of a group of headmen. Thus we see the Nāyak in charge of thc Nesargie circle had under him six headmen. The Nesargie inscription of the reign of Kārtavirya IV describes one Habbena Nāyaka who was a subordinate of the Ratta king.[43] Bacaya was also in charge of Nesargie circle headed by six headmen.[44]

The village headman had manifold functions to perform. He had to exercise judicial powers and maintain peace in the area under his jurisdiction. He had to supervise the management of the temples and other properties entrusted to him as trust.[45]

### *Great Assembly* :

For settling important matters concerning many hamlets a joint meeting of the assemblies of all the villages concerned used to be convened. This great assembly was known as *Mahānādu*.[46] A lithic record of the Rattas refers to a great assembly where the merchants of the four towns met and arranged for certain contributions for religious purposes.[47]

### *Merchant Guilds* :

Good number of merchant guilds came to be organised during Ratta administration. A record of the Rattas[48] states that the merchants of fourteen towns headed by the chief Vedichilagala gathered in an assembly and set apart sixty heads of oxen, asses, and buffaloes for the purpose of perpetually anointing the god Sāntinatha.

The guilds also served as municipal corporations. In discharging their civic functions they had to work in conjunction with the headmen.[49] Referring to these guilds in general R.C. Majumdar remarks that local corporations had reached a very high state of perfection and were looked upon as a part and parcel of the constitution of the country and were entrusted with the active management of local affairs.[50]

## *Taxes* :

Since the country under Ratta chieftains was essentially agricultural, the principal source of revenue was land tax. Lands were measured and their boundries were duly marked. Irrigation was very well attended to. The country enjoyed the riches of grains, fruits, gardens etc. The taxes were levied according to the productivity of the land. There were also other kinds of taxes apart from the land tax which the Ratta chieftains collected namely daṇḍaya and pratisiddaya.[51]

## *Public Expenditure* :

Large amounts were spent on beautifying the capitals of the Ratta chieftains and this should have told much on the exchequer. Certain officers of the government enjoyed the rent free lands and this caused considerable loss in revenue. The Ratta chieftains were great patrons of artists and learned men and kings like Kārtavirya IV maintained Saptanga which included learned men, heralds, songsters, poets, jesters, historians, etc. This involved heavy expenditure. Public money was also spent on constructing temples. The Kalholi inscription tells that the king Raja, a feudatory of Rattas erected a temple 'adorned with golden pinnacles, and arched portals fashioned like a sea-master'.[52] Similarly another officer of the Rattas built a shrine which was described as the jewelled diadem on the lovely woman of the earth.[53]

### *Measures* :

The land measure known to the Rattas was nivartana an ancient measure equal to two hundred square cubits.[54] Many Ratta records refer to this land measure. In one of the inscriptions a grant of six nivartanas was made by the king Kanna in the village of Mulugunda belonging to Sugandhavarti.[55] The same record informs us that Mahāmandalēsvara Prithvirāma gave a grant of 18 nivartanas to the shrine of Jinendra. Another land measure mentioned in the inscriptions was mattars. King Kanna gave six mattars of land in Piriyokula to the west of Sugandhavarti for the god presiding over twelve villages.[56] The 'Kamma' or 'Kamba' was again another kind of land measure known to the Rattas.[57] A field measure of one thousand betel plants also occurs in the Ratta records.[58]

It appears that grain such as rice and rāgi and liquids such as oil, ghee and curds-were sold by measures. The Kalholi inscription of Kārtavirya IV refers to grain measures such as mana, balla, sollige and hādaru. However the capacity of mana as grain measure is not known but as oil measure it is equal to four seers.[59] One balla is equivalent to two seers.[60] Sollige which is also called solige, solage or solege is one fourth of a sidde. And such six siddes make one kolaga. The solage, the sidde and the kolage are all used in the North Kanara district even today.[61] Kolaga is referred to in Nesarige inscription of Kārtavirya IV.[62]

### *Administration of Justice* :

In Ratta administration the kings as supreme judges decided all important cases. They are described as engaged in punishing the wicked and protecting the good.[63] A Ratta inscription says that when Lakshma (Laṣhmidēva I), the lord of earth was reigning with mighty authority neither offence nor punishment existed, so skilful was he.[64] Under Rattas justice was administered evenly.

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2. Sugandhavarti the modern Saundatti (Lat 15° 12'E) the city that abounds in sweet odours occurs in the inscription No. II of *JBRAS*, vol. X in different corrupt forms as in line 82, Savadhavatti. J.F. Fleet thinks that Savandhavatti is the correct reading in both the places.
3. *JBBRAS*, Vol. X, no. V
4. Vide Fleets notes on Indian History and Geography, S.A., Vol. XVI, p. 7, 8.
5. J.F. Fleet,"Inscriptions relating to the Ratta Chieftains of Saudatti and Belgaum *JBBRAS*, X, p. 243
6. *Ibid.*, X, pp. 217, 231: *I.A.*, XIX, p. 243
7. Lattanur seems to be the same as modern Latur on the border of Karanataka.
8. *I.A.* XIX, p. 165: Mantur Kanarese Inscription of the regin of Western Chalukya king Jayasimha I.
9. B. Lewis Rice, *Mysore and Coorg from the inscriptions* p. 174
10. *Imperial Gazetteer*, vol. X, p. 291 note.
11. S.K. Aiyangar, *Ancient India and south Indian History* (Poona, 1941)
12. *JBBRAS*, X, p. 252
13. *I.A.* XIX p. 165
14. *JBBRAS*, X, p. 229
    *It is clear (see infra No. 21) that the figures denote the number of villages (Ed.).
15. *Ibid.*. p. 252
16. Shrigondekar, *Māhnasollāsa* (Borada, 1939) p. 29 slokas 2 to 9
17. *JBBRAS*, X, p. 274
18. *Ibid.*, p. 274-275
19. *Ibid.*, X, inscription II
20. *JBBRAS*, X, p. 252, 253
21. *Ibid.*,
22. *IA*, XIX, p. 165
23. *EI*, XVI, pp. 7. 8.
24. *Ibid.*, XIII, p. 32
25. Narasimhacharya, *Karanatak Kavicharite*, pp. 140, 255.
26. *EI*, XIII, p. 27
27. *JBBRAS*, X, p. 230
28. *EI*, XII, p. 281

29. See also A.S. Altekar, '*The Rashtrakutas and their Times*, (Poona. 1967). p. 163
30. *Ibid.*, p. 33
31. Shrigondekar, *Mānasoliāsa*, (Borada, 1939) pp. 33-34 Slokas, 52-59
32. *EI*, XIII, p. 33
33. *Ibid*, pp. 24-25
34. *JBBRAS*, X, pp. 293-94
35. *Ibid.*
36. cf. Gautama, II., 2, 12 17; *Baudhāyana Dharmasūtra*, 1. 10. 7; *Arthasastra*, chap 13; *Kamaṇḍaka*, IV, 32; *Sukra*, III, 78
37. *Gazetteer of Bombay Presidency*, History of Rattas, p. 354 f.
38. *JBBRAS*, X, no. VII
39. Fleet, p. 202
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41. *JBBRAS*, X, p. 208
42, A.S. Altekar, *Village Communities*, pp. 1—2
    This necessarily means Sugandhavatti was a cluster of 12 villages (Ed.)
43. *JBBRAS*, X, p. 283
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46. *South Indian Epigraphy* 1918, p. 209
47. *JBBSAS*, X, p. 283
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51. *IA*, XIX, p. 165
52. *JBBRAS*, X, p. 253
53. *Ibid.*, p. 256
54. Halsi copper plate inscription see *JBBRAS*, IX, p. 299 ff.
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56. *JBBRAS*, X. p. 259
57. See also *South Indian Epigraphy*, 1915, no. 417 etc.
58. *JBBRAS*, X, no. I
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61. Dinkar, D, *The Mahāmandalēsvaras under the Chalukyas of Kalyani*, (Bombay, 1951), p. 365
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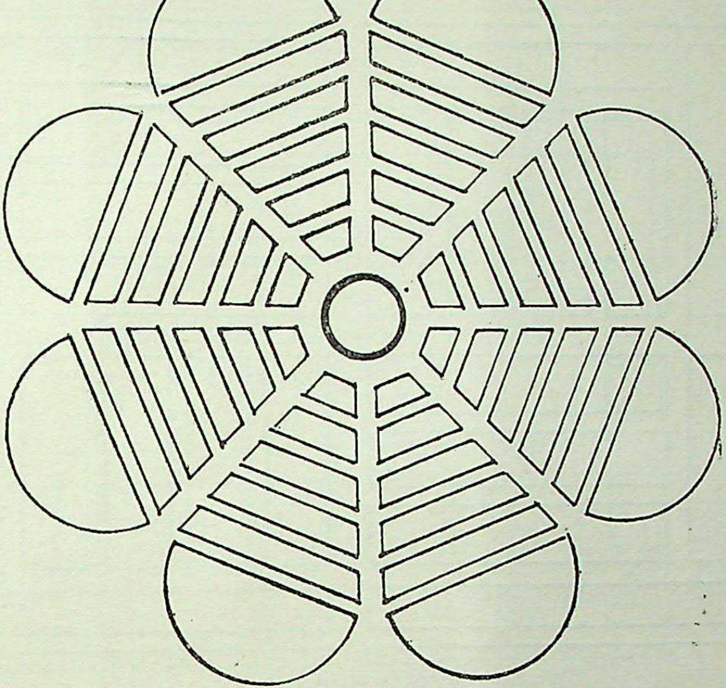
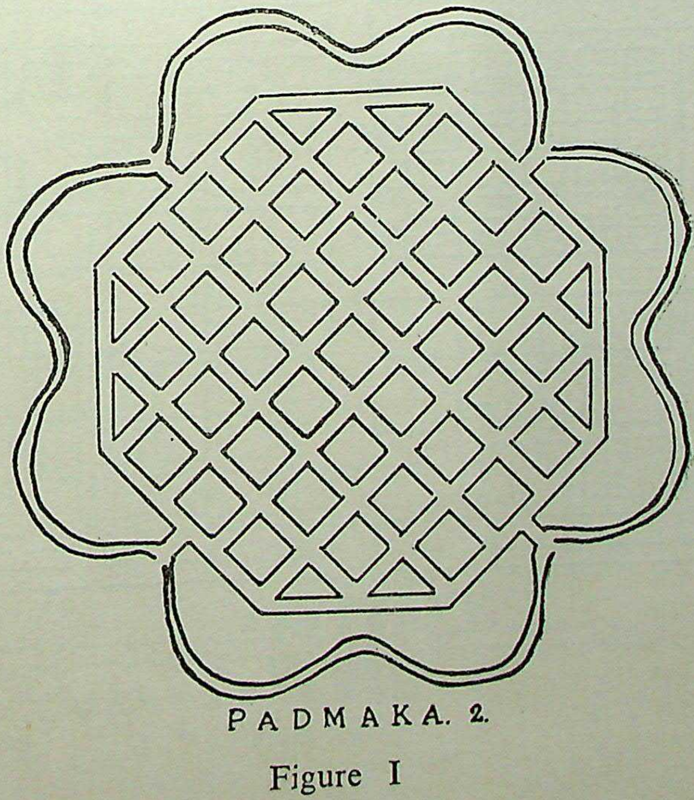
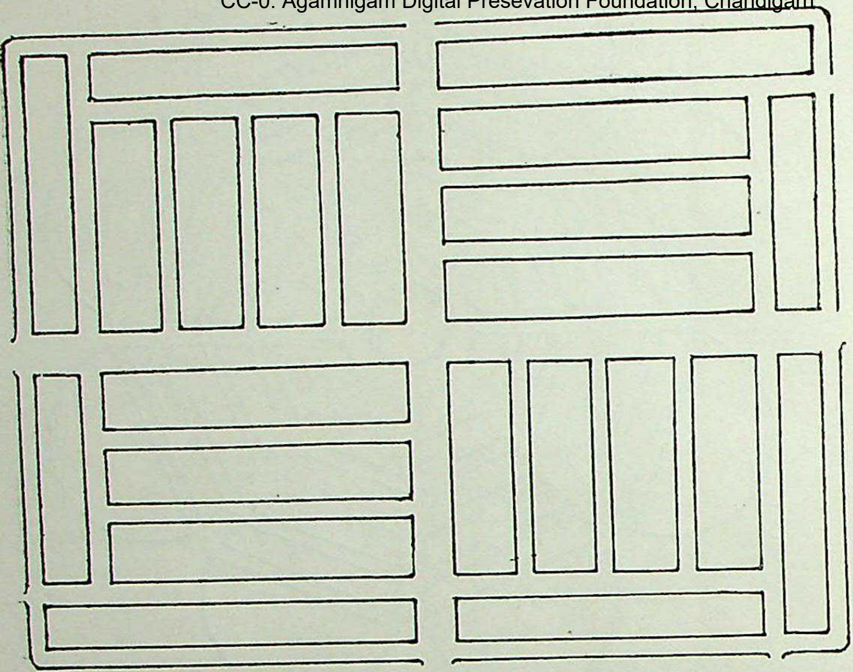


PADMAKA. 1

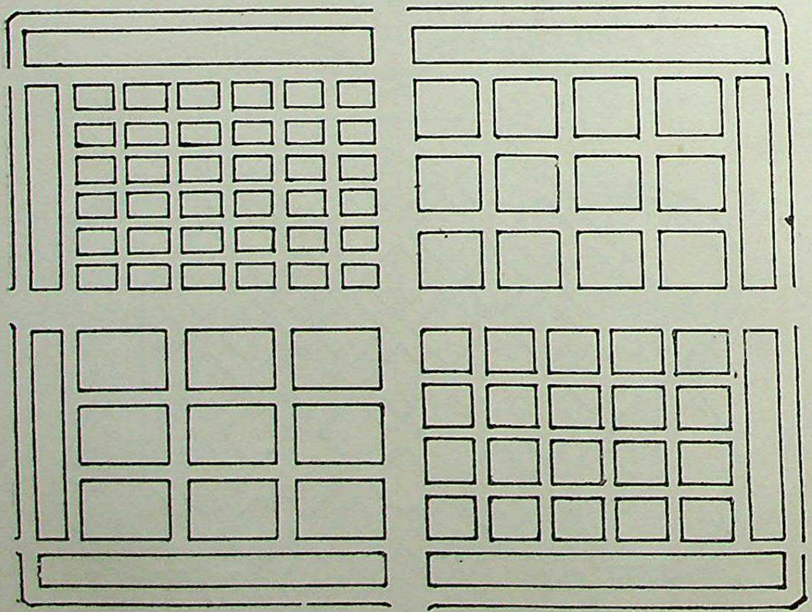


PADMAKA. 2.

Figure I

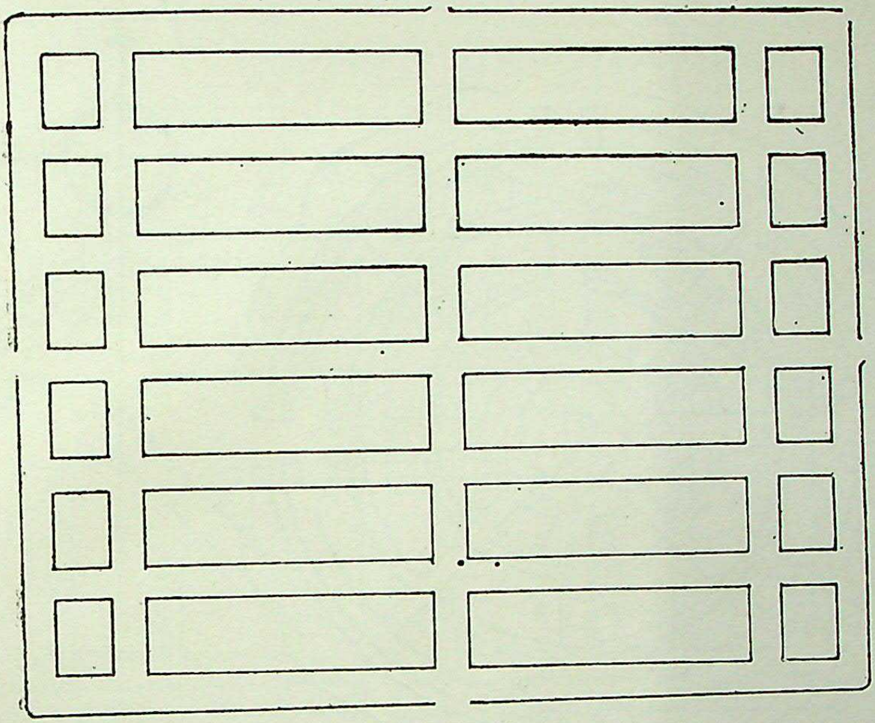


SWASTIKA

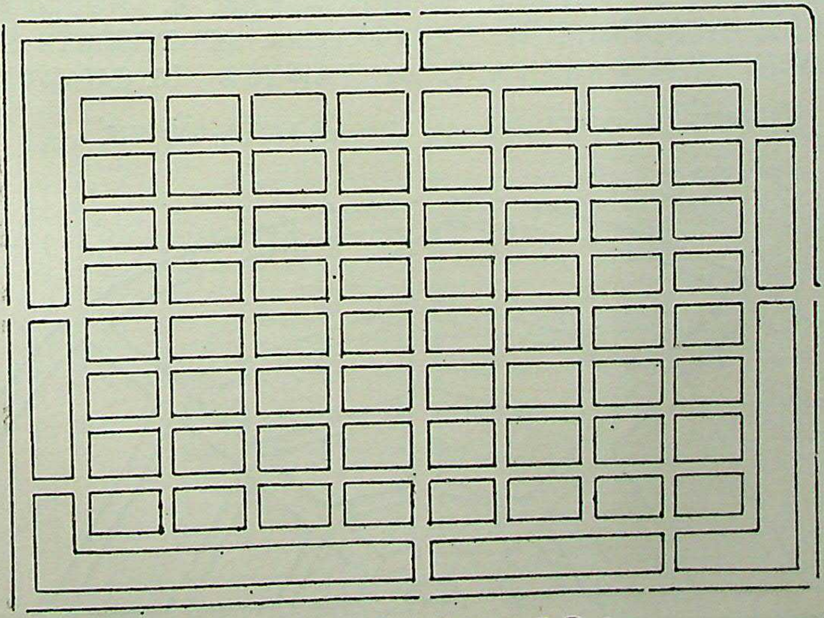


PRASTARA

Figure II

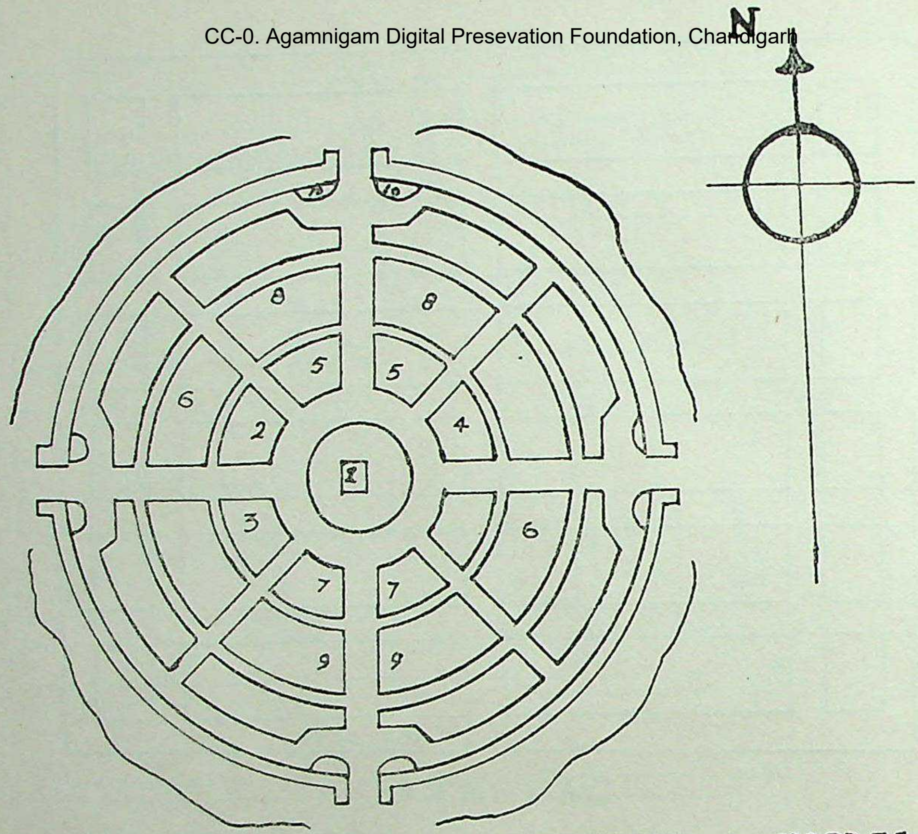


DANDAKA



SARVATOBHADRA.

Figure III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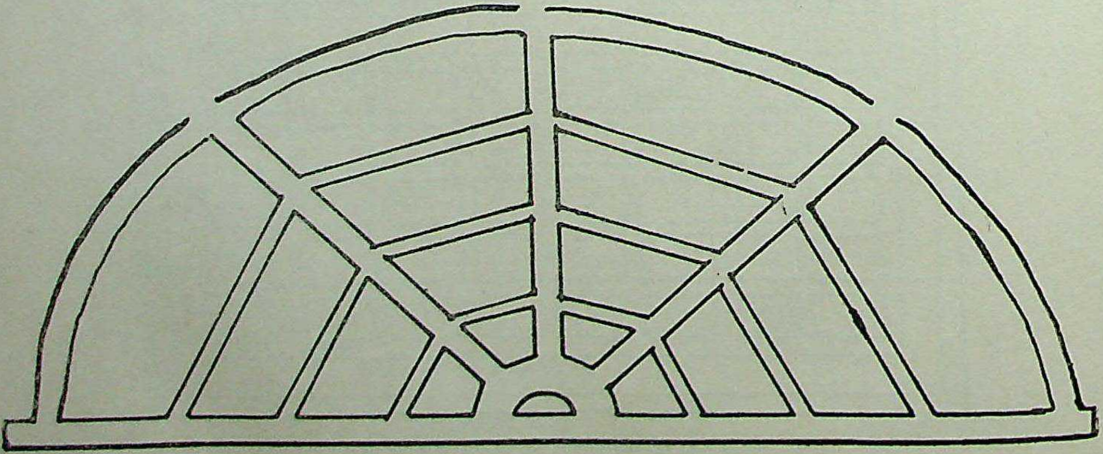
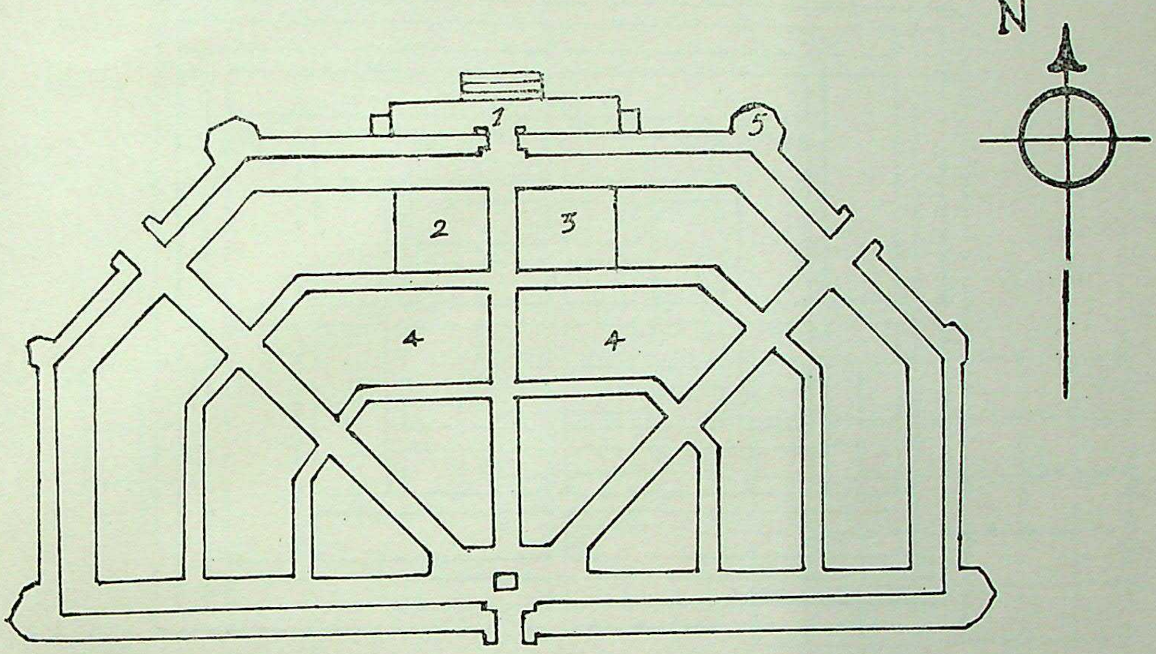
1. TEMPLE 2. PALACE. 3. MINISTERS 4. NOBLES
5. PUBLIC BUILDINGS. 6. KSHATRIYAS. 7. PRIESTS Etc.
8. ARCHITECTS & ARTISANS. 9. VAISYAS. 10. GUARDS

GENERAL OUTLINE OF KHARVATA TOWN.



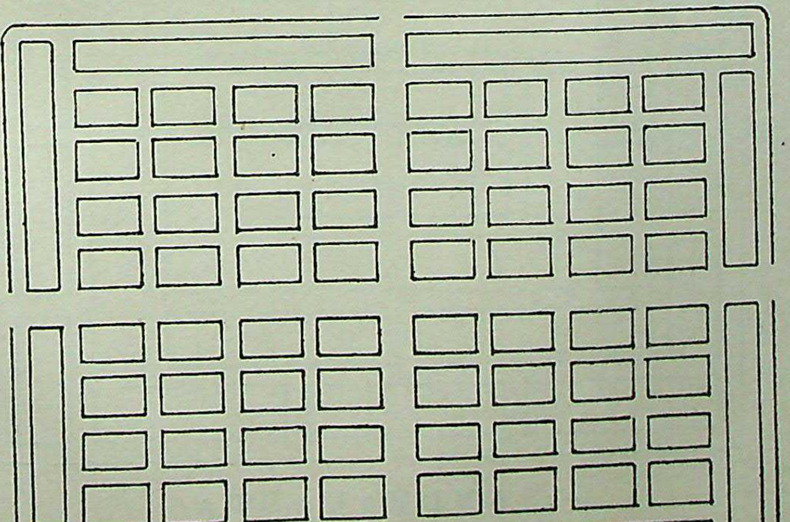
KĀRMUKA

Figure IV



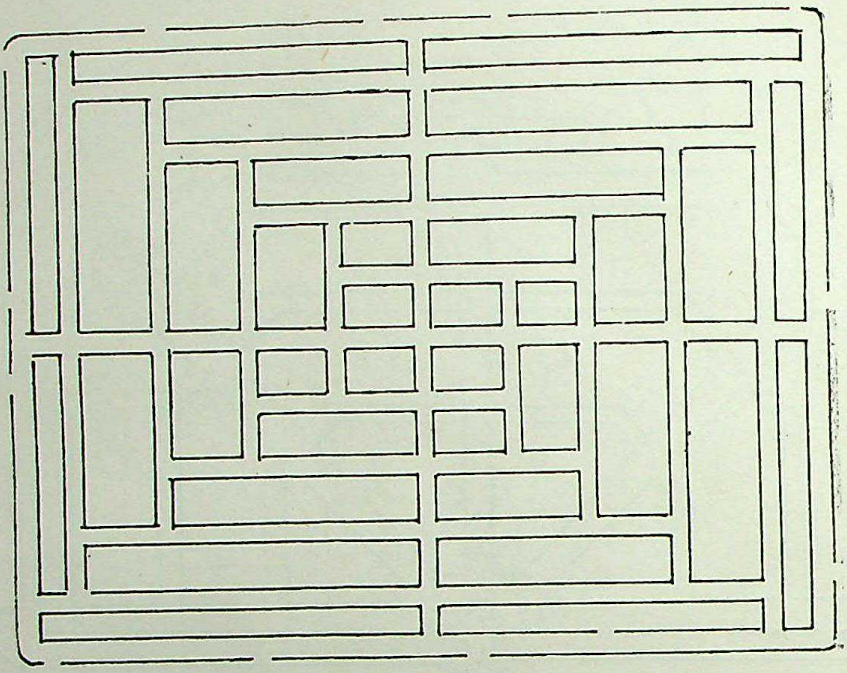
1 HARBOUR. 2. MARKET 3. GODOWNS
4. BLOCK FOR SUDRAS ONLY. 5 WATCHTOWER

GENERAL OUT-LINE OF KHETA TOWN

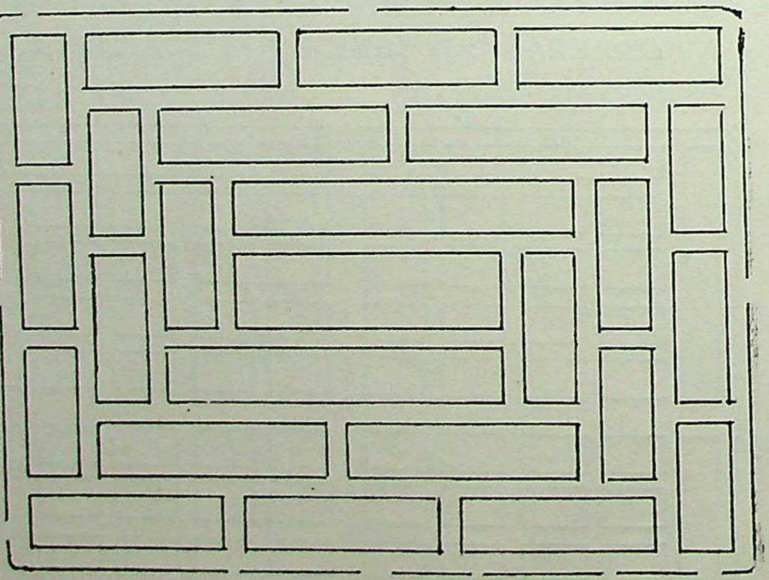


CHATURMUKHA

Figure V

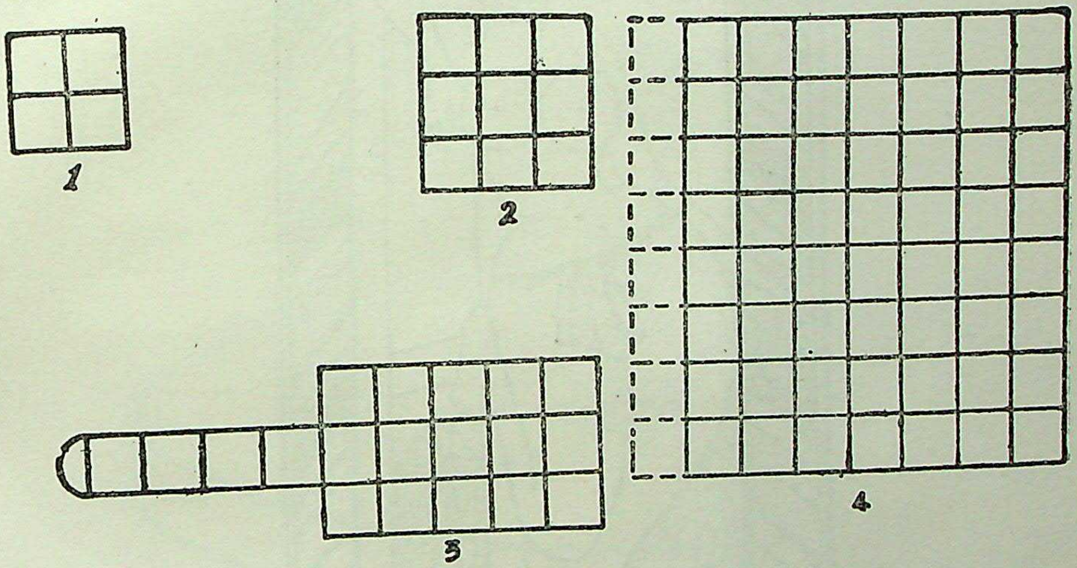


NANDYAVARTA



NANDYAVARTA

Figure VI



Game Board from Nagarjunakonda.

Figure VII

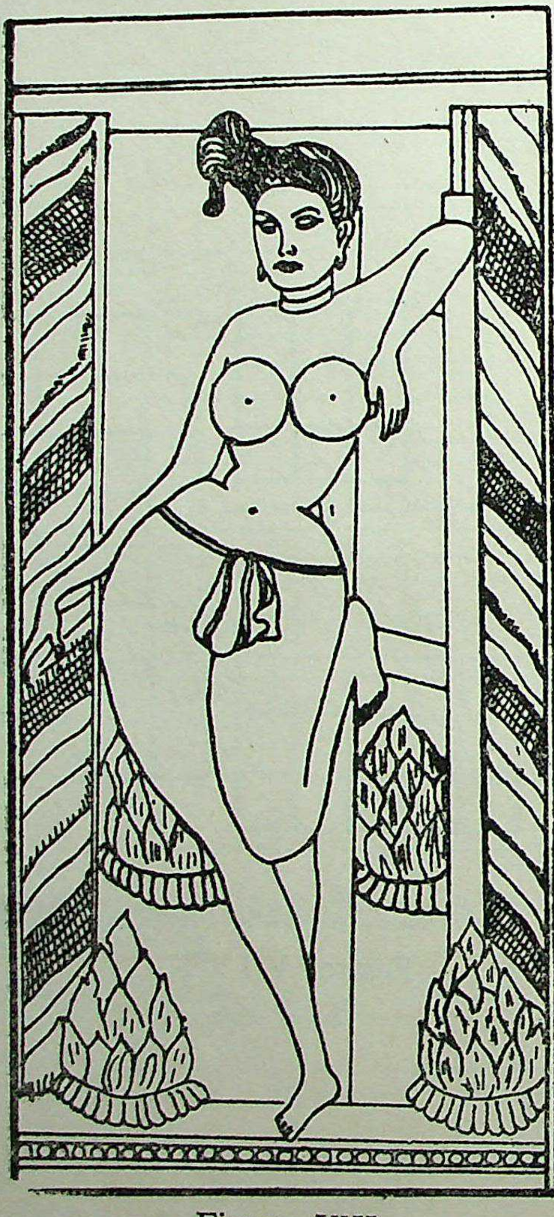
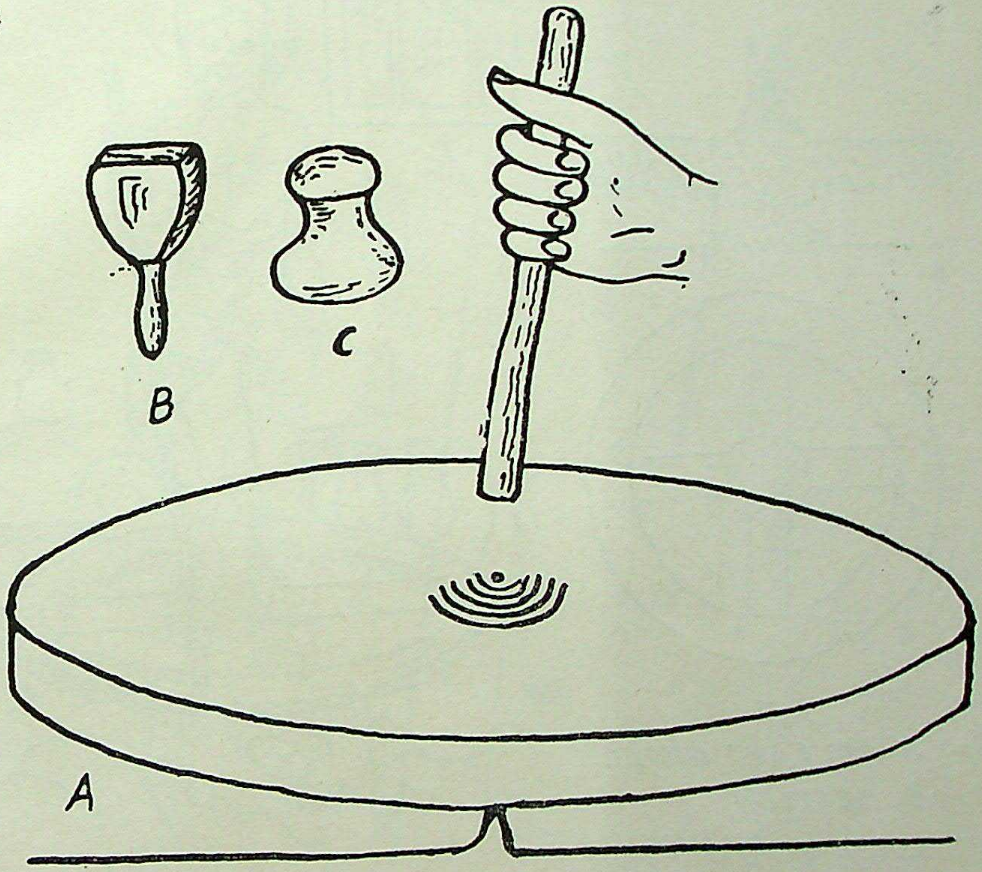
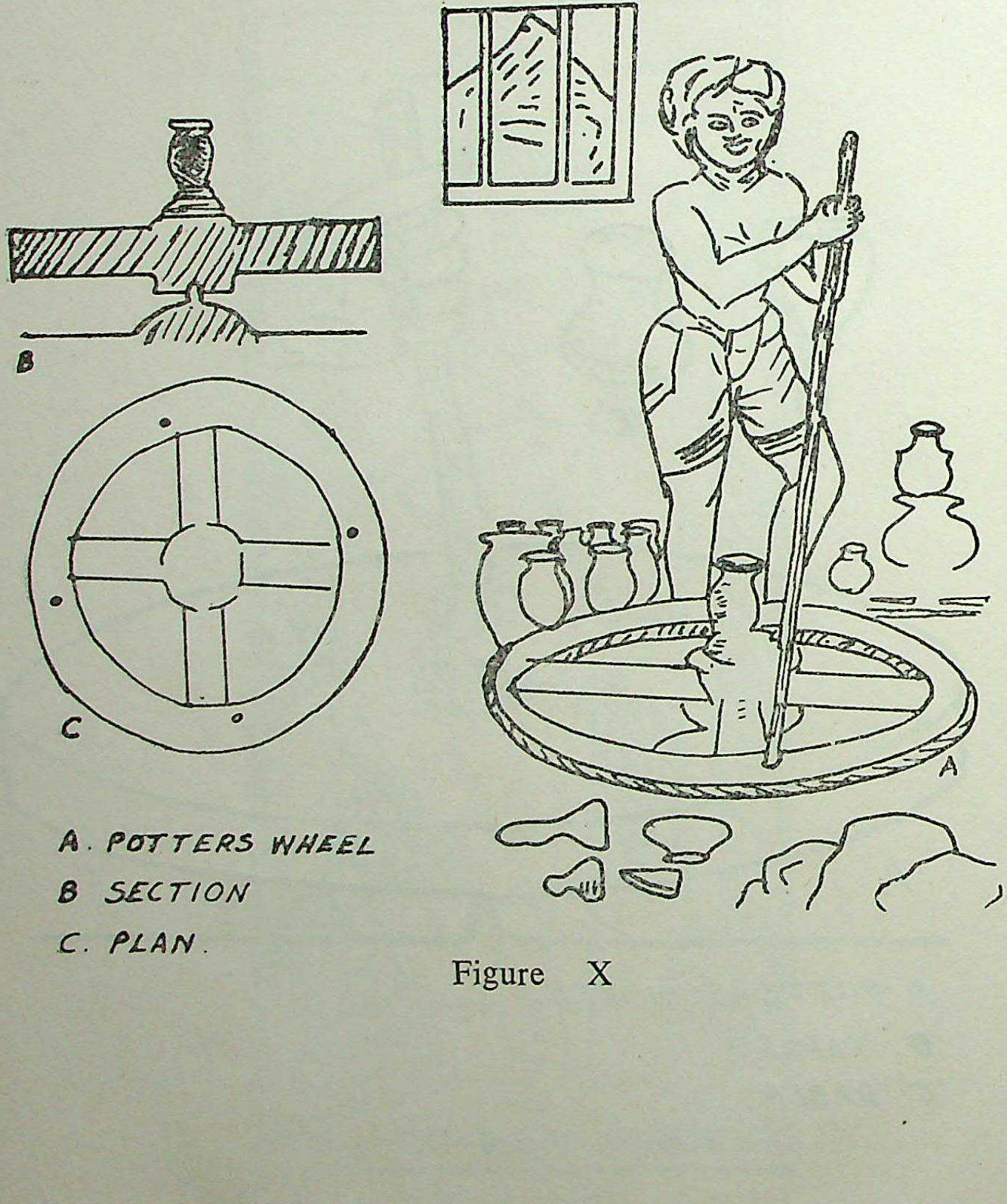


Figure VIII



A. POTTERS WHEEL.
B. TAPER.
C DABER

Figure IX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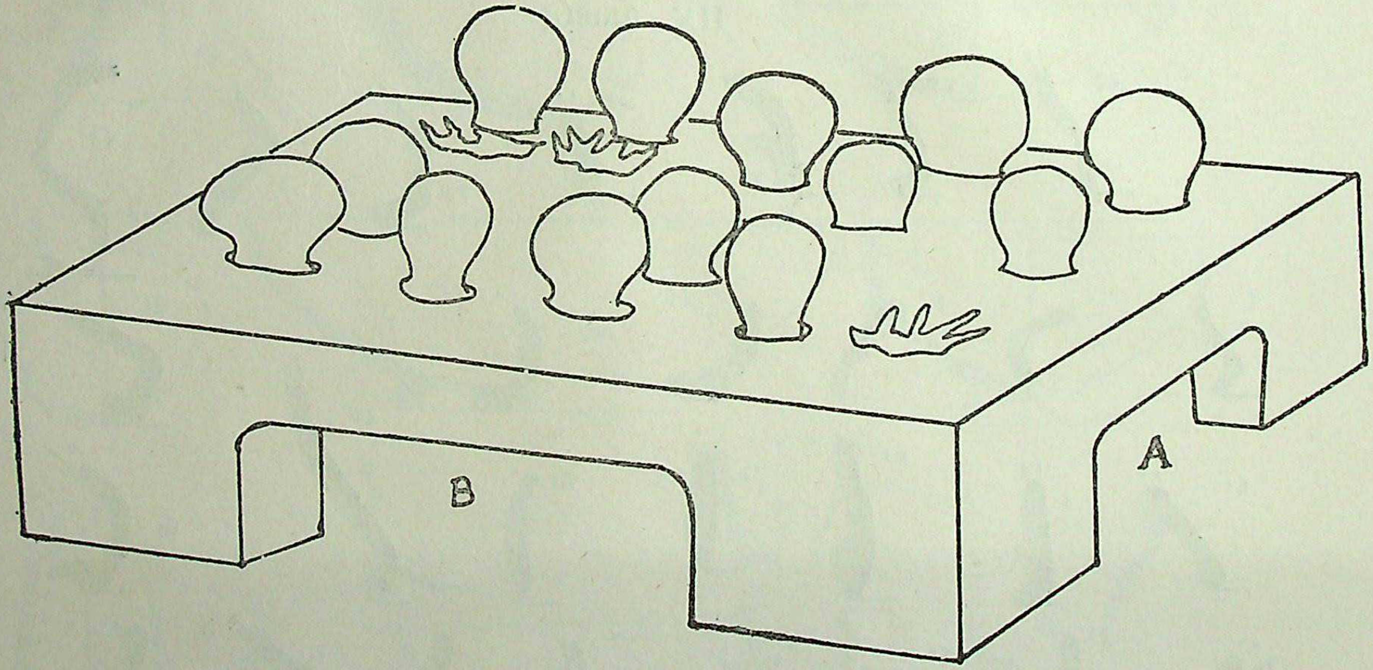
A. POTTERS WHEEL
B SECTION
C. PLAN.

Figure X



A·B·FIRE ENTRANCE

Figure XI

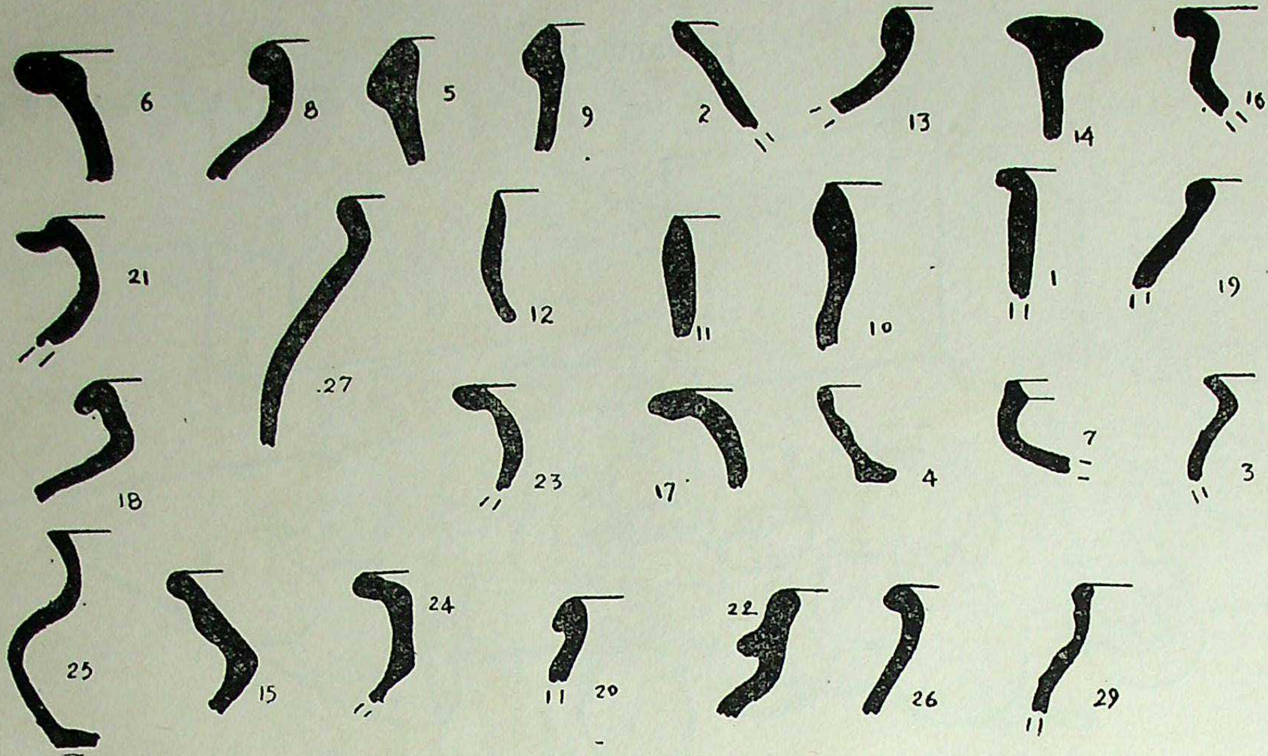

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Figure XII

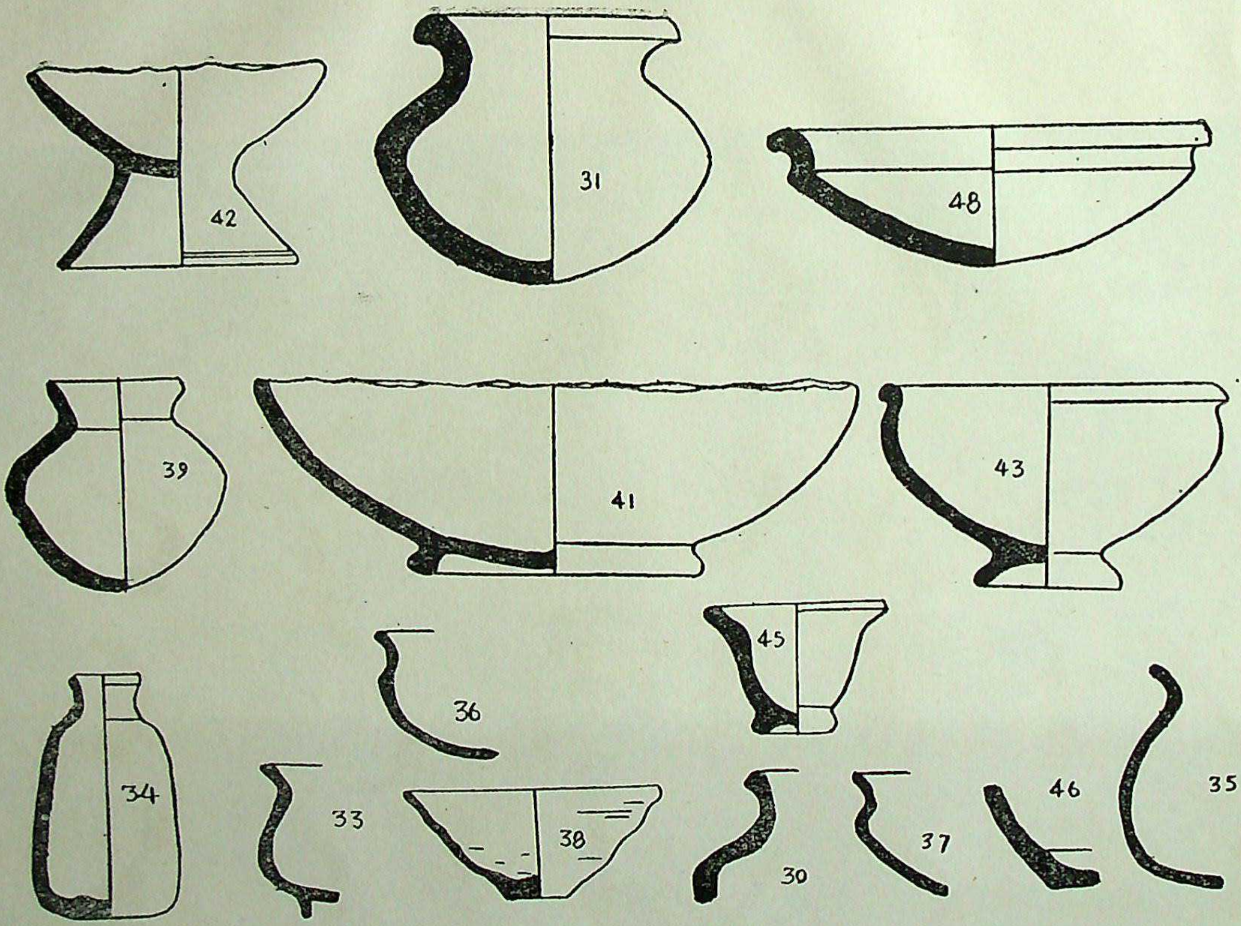
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Figure XIII

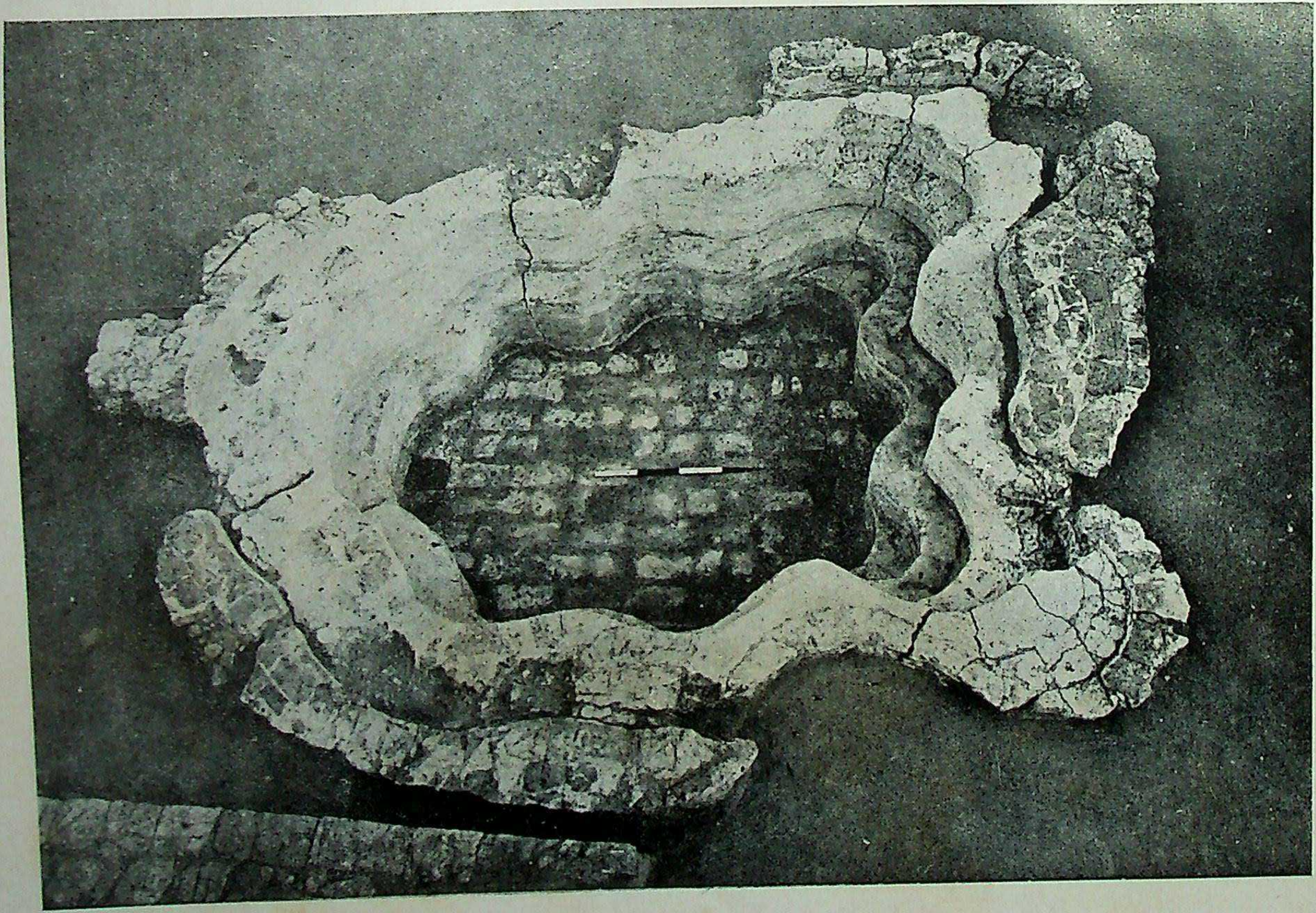

Plate I : Kūrmaciti

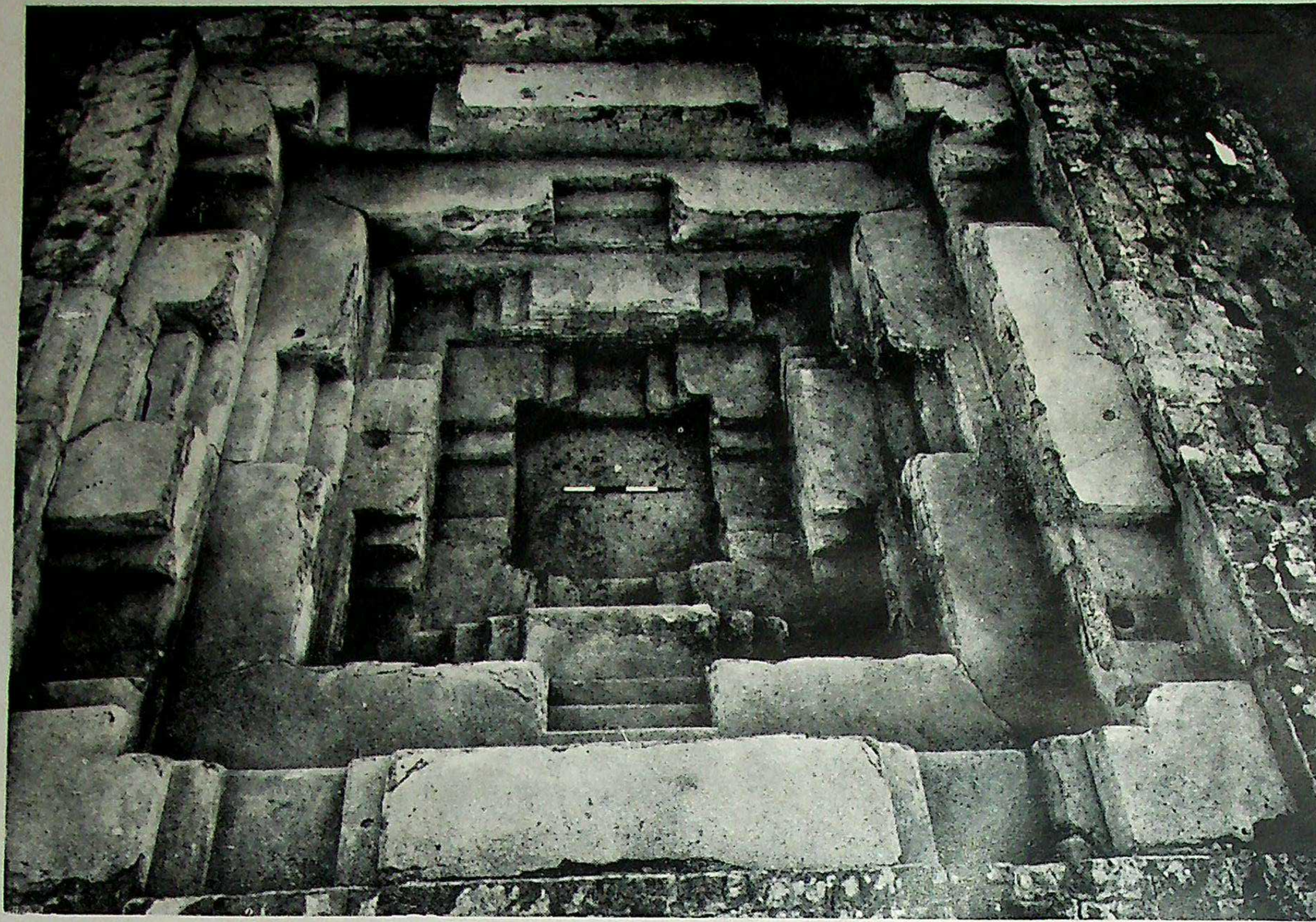

Plate II : Avabritha Tank

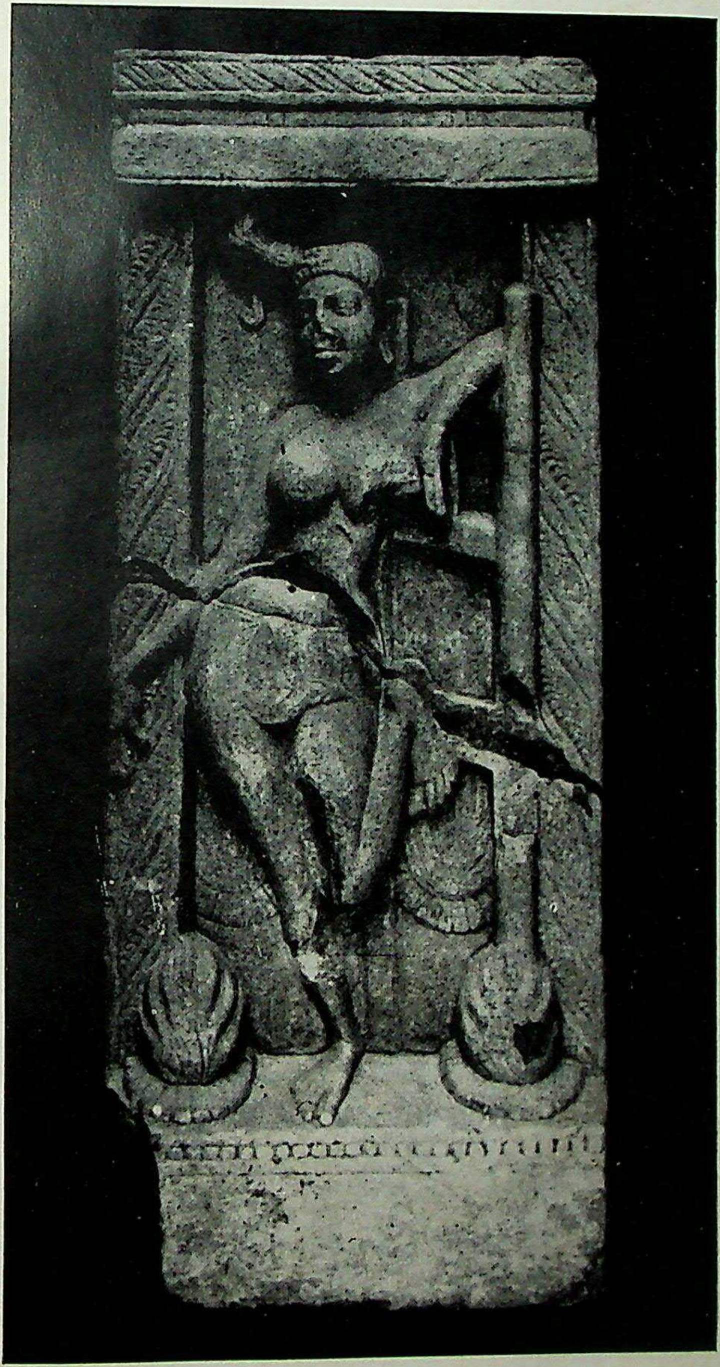

Plate III : Lady Committing Satī

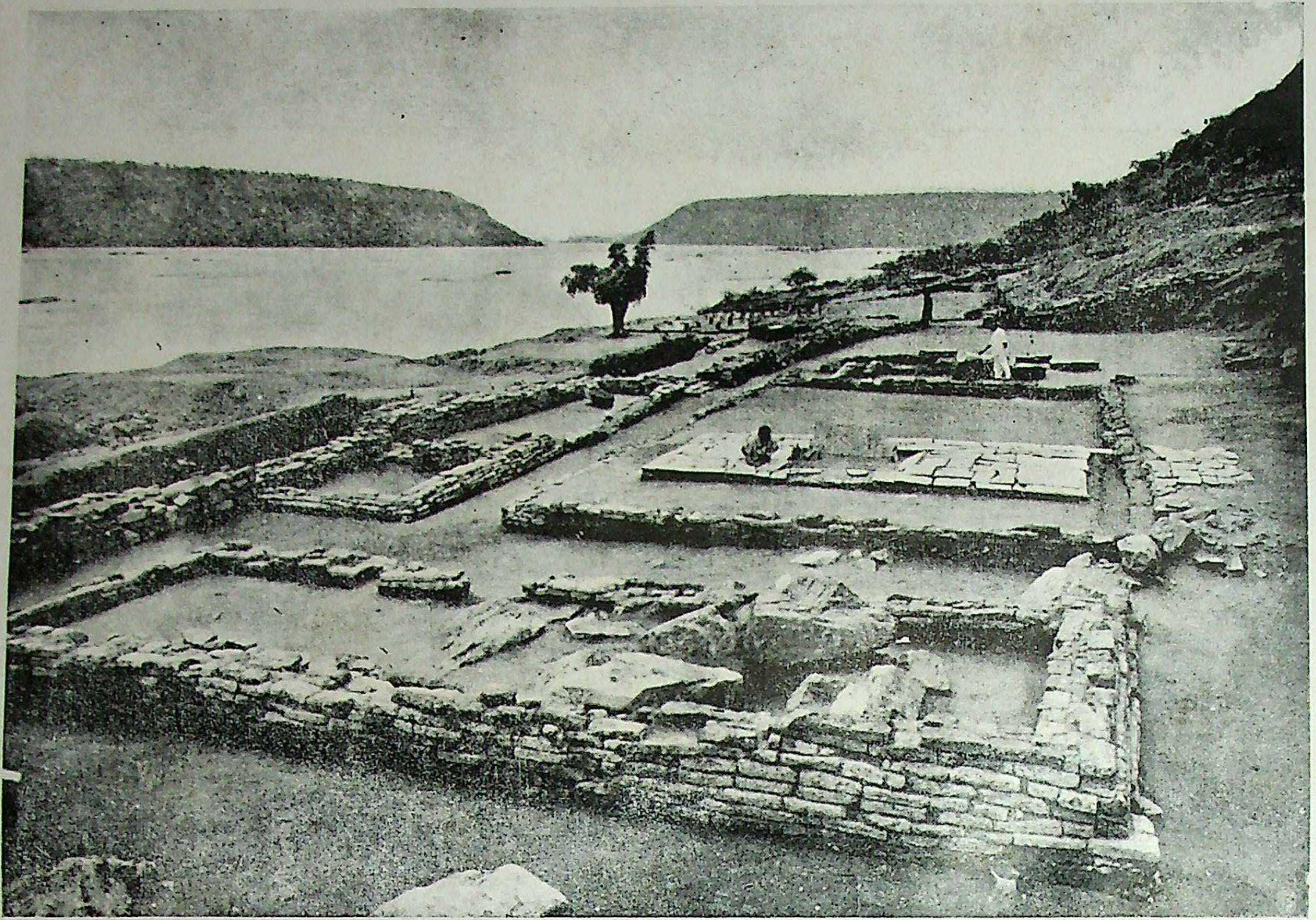

Plate IV : Burning Ghat